

Scientific Programme

Wednesday, 11 September 2019

08:00 - 08:45		<p>Hot Topic, Hall B</p> <p>Hot Topic 1: Is MS becoming a milder disease, and, if so, why?</p> <p>Chairs O. Andersen (Gothenburg, SE) A. Scalfari (London, UK)</p>
08:00 - 08:15	1	<p>Trend for decreasing MS disability with increasing calendar year I. Kister (New York, US)</p>
08:15 - 08:30	2	<p>Slower MS disability progression than previously reported H. Tremlett (Vancouver, CA)</p>
08:30 - 08:45	3	<p>Increasing incidence of RRMS, decreasing incidence of PPMS, changing gender ratio and decreasing mortality M.-L. Sumelahti (Tampere, FI)</p>
08:00 - 09:30		<p>Educational Session, Hall C</p> <p>Educational Session 4: Disease modifying treatments in MS</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs A. Green (San Francisco, US)</p>
08:00 - 08:30	13	<p>Modifying the immunological milieu in MS - the development of platform therapeutic agents - success and limits of understanding J. Sabatino (San Francisco, US)</p>
08:30 - 09:00	14	<p>Keeping injury from the CNS - therapeutic agents that impact immune cell trafficking - prominent efficacy and pitfalls A. Green (San Francisco, US)</p>
09:00 - 09:30	15	<p>Depleting the source of immunological injury in MS - therapeutic agents that target the source of injury - robust effect and risks A.-K. Pröbstel (San Francisco, US)</p>

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08:00 - 09:30		<p>Educational Session, Hall D</p> <p>Educational Session 2: Paediatric MS</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs J. Gärtner (Göttingen, DE) C. Hemingway (London, UK)</p>
08:00 - 08:30	7	<p>The management of anti-MOG positive ADS R. Neuteboom (Rotterdam, NL)</p>
08:30 - 09:00	8	<p>How to prevent secondary progression in children with MS J. Gärtner (Göttingen, DE)</p>
09:00 - 09:30	9	<p>Differential diagnosis C. Hemingway (London, UK)</p>
08:00 - 09:30		<p>Educational Session, Hall F</p> <p>Educational Session 3: B cell therapy of MS - pathology, immunology, clinical effects</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs C. Stadelmann (Göttingen, DE) K. Schmierer (London, UK)</p>
08:00 - 08:30	10	<p>Insights from pathology underpinning B cell-targeted therapy C. Stadelmann (Göttingen, DE)</p>
08:30 - 09:00	11	<p>Are B cells all that matters? D. Baker (London, UK)</p>
09:00 - 09:30	12	<p>Relapses, inflammation, progression: mind our life-changing language K. Schmierer (London, UK)</p>

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		Educational Session, Hall G
08:00 - 09:30		Educational Session 1 (MAGNIMS): Update on MAGNIMS guidelines on the use of MRI in the diagnosis and monitoring of multiple sclerosis
		Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)
		Chairs A. Rovira (Barcelona, ES) O. Ciccarelli (London, UK)
08:00 - 08:30	4	How and when to obtain brain MRI in the diagnosis and monitoring of multiple sclerosis? M. Wattjes (Hannover, DE)
08:30 - 09:00	5	Value of spinal cord MRI O. Ciccarelli (London, UK)
09:00 - 09:30	6	When and how to use gadolinium? A. Rovira (Barcelona, ES)
		Educational Session, Hall H
08:00 - 09:30		Educational Session 5 (RIMS): Rehabilitation in progressive MS
		Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)
		Chairs J. Freeman (Plymouth, UK) P.L. Eelen (Melsbroek, BE)
08:00 - 08:30	16	Rehabilitation approaches in progressive MS J. Freeman (Plymouth, UK)
08:30 - 09:00	17	Bladder and bowel in progressive MS P.L. Eelen (Melsbroek, BE)
09:00 - 09:30	18	Caregiver burden in progressive MS V. Matthews (Herts, UK)
		Hot Topic, Hall B
08:55 - 09:40		Hot Topic 2: MS Pregnancy in the treatment era
		Chairs M.P. Amato (Florence, IT) T. Kümpfel (Munich, DE)

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08:55 - 09:10	19	The maternal perspective - when to stop/resume treatment and risks for progression E. Portaccio (Florence, IT)
09:10 - 09:25	20	The fetal/child perspective - risks related drug exposure of the child, breastfeeding and when to reassume medication K. Hellwig (Bochum, DE)
09:25 - 09:40	21	Patient awareness about family planning represents a major knowledge gap in multiple sclerosis M. D'Hooghe (Melsbroek, BE)
09:00 - 10:15		Young Scientific Investigators' Session, Hall E Young Scientific Investigators' Session 1 - Biomarkers Chairs R. Diem (Heidelberg, DE) C. Teunissen (Amsterdam, NL)
09:00 - 09:15	22	Serum neurofilament light chain levels are increased within three months of new gadolinium enhancing lesions in multiple sclerosis M. Rosso (Brookline, US)
09:15 - 09:30	23	Serum neurofilament light chain is associated with MS outcomes and comorbidity in a large population of people with multiple sclerosis K. Fitzgerald (Baltimore, US)
09:30 - 09:45	24	Neurofilament light chains in serum in biopsied multiple sclerosis patients A.-S. Beutler (Göttingen, DE)
09:45 - 10:00	25	The extent and distribution of fibrinogen deposition in progressive MS correlate with meningeal and choroid plexus inflammation A. Poli (Verona, IT)
10:00 - 10:15	26	Polygenic risk for multiple sclerosis and multi-modal brain imaging among 8-12 year old children in the general population C.L. de Mol (Rotterdam, NL)
09:45 - 10:30		Hot Topic, Hall B Hot Topic 3: Should we recommend vitamin D supplementation to our MS patients? Chairs P. Sundström (Umeå, SE) K. Munger (Boston, US)
09:45 - 10:00	27	MS patients should be advised to take vitamin D for MS A. Ascherio (Boston, US)

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10:00 - 10:15	28	Why vitamin D supplementation is not a general advice in MS J. Smolders (Nijmegen, NL)
10:15 - 10:30	29	Comments on the use of vitamin D in clinical practice, pros and cons E. Mowry (Baltimore, US)
09:45 - 10:30		Hot Topic, Hall C Hot Topic 4: HSCT and stem cell treatment in MS Chairs P.A. Muraro (London, UK) J. Oh (Toronto, CA)
09:45 - 10:00	30	HSCT for MS - we are ready for prime time J. Burman (Uppsala, SE)
10:00 - 10:15	31	Hold your horses - HSCT is still an experimental treatment S. Hauser (San Francisco, US)
10:15 - 10:30	32	Mesenchymal stem cell treatment in MS A. Uccelli (Genoa, IT)
09:45 - 10:30		Hot Topic, Hall D Hot Topic 5: Imaging: lesion formation and assessment Chairs M.A. Rocca (Milan, IT) A. Rovira (Barcelona, ES)
09:45 - 10:00	33	Evolution of white matter in MS and the role of gadolinium-based contrast agents D.S. Reich (Bethesda, US)
10:00 - 10:15	34	Evolution of cortical lesions in MS J. Geurts (Amsterdam, NL)
10:15 - 10:30	35	A place for PET imaging in MS B. Bodini (Paris, FR)
09:45 - 10:30		Educational Session, Meeting Room T3 Case-based Educational Session 6: How to manage urogenital problems and spasticity Chairs P. Flachenecker (Bad Wildbad, DE) I. Kleiter (Berg, DE)

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09:45 - 10:05	36	Case #1: multimodal management of spasticity P. Flachenecker (Bad Wildbad, DE)
10:05 - 10:25	37	Case #2: diagnosis and therapy of voiding difficulties I. Kleiter (Berg, DE)
Educational Session, Meeting Room T4		
09:45 - 10:30		Case-based Educational Session 7: How to manage non response to induction therapies? Chairs A.J. Coles (Cambridge, UK) J. Sastre-Garriga (Barcelona, ES)
09:45 - 10:05	38	Case #1 A.J. Coles (Cambridge, UK)
10:05 - 10:25	39	Case #2 J. Sastre-Garriga (Barcelona, ES)
Educational Session, Meeting Room T5		
09:45 - 10:30		Case-based Educational Session 8: Progressive MS: who should be treated and what should patients expect? Chairs J. Chataway (London, UK) R.J. Fox (Cleveland, US)
09:45 - 10:05	40	Case #1 J. Chataway (London, UK)
10:05 - 10:25	41	Case #2 R.J. Fox (Cleveland, US)
Plenary Session, Hall A		
11:00 - 12:15		Plenary Session 1: Welcome and ECTRIMS Lecture Chairs M.P. Amato (Florence, IT) B. Hemmer (Munich, DE) J. Hillert (Stockholm, SE)
11:00 - 11:30	42	Welcome to ECTRIMS 2019 B. Hemmer (Munich, DE) J. Hillert (Stockholm, SE)

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11:30 - 12:15 43 ECTRIMS Lecture: Beyond RCTs - why and how observational studies will guide the future of MS treatment
M. Trojano (Bari, IT)

12:30 - 13:30
Satellite Symposium, Hall A
Satellite Symposium 1: Sustained control of MS: what have we learned?

Supported by Merck

Chairs

G. Giovannoni (London, UK)
A.H. Cross (St. Louis, US)

12:30 - 12:35 44 Welcome and objectives
A.H. Cross (St. Louis, US)

12:35 - 12:50 45 Recent advances in MS immune targeting
F. Piehl (Stockholm, SE)

12:50 - 13:10 46 Is sustained disease control in MS achievable?
M. Magyari (Copenhagen, DK)

13:10 - 13:25 47 How can we monitor sustained disease control in MS?
G. Giovannoni (London, UK)

13:25 - 13:30 48 Closing
G. Giovannoni (London, UK)

12:30 - 13:30
Satellite Symposium, Hall C
Satellite Symposium 2: The evolution of MS study outcomes: relevance to clinical practice today

Supported by Celgene

Chairs

G. Comi (Milan, IT)

12:30 - 12:35 49 Welcome and introductions
G. Comi (Milan, IT)

12:35 - 12:40 50 Implementation of novel MS study endpoints in the clinic
G. Comi (Milan, IT)

12:40 - 12:55 51 Quantitative brain volume change and lesion assessment using MRI imaging
R. Zivadinov (Buffalo, US)

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12:55 - 13:10	52	Patient-reported outcomes and cognition assessment as new measures of disability progression P. Matthews (London, UK)
13:10 - 13:25	53	Pragmatic studies: real-world cohorts in real practice settings T. Ziemssen (Dresden, DE)
13:25 - 13:30	54	Summary and closing G. Comi (Milan, IT)

13:45 - 15:15		Scientific Session, Hall B Scientific Session 1: Remyelination in the course of MS Chairs L. Brundin (Stockholm, SE) R. Franklin (Cambridge, UK)
13:45 - 14:05	55	Is remyelination possible in MS? J. Frisen (Stockholm, SE)
14:05 - 14:25	56	Remyelination from cell based screening to clinical trial A. Green (San Francisco, US) Platform presentations of related original papers
14:25 - 14:37	57	Single nuclei transcriptomics of human white matter oligodendroglia in multiple sclerosis E. Agirre (Stockholm, SE)
14:37 - 14:49	58	Microglial interaction with nodes of Ranvier: a role in repair? T. Roux (Paris, FR)
14:49 - 15:01	59	Periventricular remyelination is associated with grey matter atrophy in MS M. Tonietto (Paris, FR)
15:01 - 15:13	60	A phase 1b, open-label study to evaluate the safety and tolerability of the putative remyelinating agent, liothyronine, in individuals with multiple sclerosis S.D. Newsome (Baltimore, US)

13:45 - 15:15		Scientific Session, Hall C Scientific Session 2: Safety assessment in the post-approval phase - real world evidence Chairs O. Gray (Dundonald, UK) C. Pozzilli (Rome, IT)
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13:45 - 14:05	61	To use clinical registries in the phase 4 of disease modifying treatment S. Vukusic (Lyon, FR)
14:05 - 14:25	62	Genes, environment and safety monitoring in using registries T. Olsson (Stockholm, SE)
		Platform presentations of related original papers
14:25 - 14:37	63	Determinants of clinical outcomes for patients with natalizumab-associated progressive multifocal leukoencephalopathy C. McGuigan (Dublin, IE)
14:37 - 14:49	64	Risk of hypogammaglobulinemia in long-term treatment with rituximab in multiple sclerosis S. Hallberg (Stockholm, SE)
14:49 - 15:01	65	Serum immunoglobulin levels and risk of serious infections in the pivotal phase III trials of ocrelizumab in multiple sclerosis and their open-label extensions T. Derfuss (Basel, CH)
15:01 - 15:13	66	Incidence of any malignancies in patients treated for multiple sclerosis. A Danish registry-based cohort M. Sabidó (Darmstadt, DE)
13:45 - 15:15		Educational Session, Hall F Educational Session 9: Neurofilament light chains and other fluid biomarkers in MS Level: Intermediate (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists) Chairs J. Kuhle (Basel, CH) F. Piehl (Stockholm, SE)
13:45 - 14:15	67	Setting the scene: the relevance of conventional CSF and imaging biomarkers in MS F. Piehl (Stockholm, SE)
14:15 - 14:45	68	Assay stability and preanalytics of neurofilament determinations. E. Willemse (Amsterdam, NL)
14:45 - 15:15	69	Blood neurofilament light chain: ready for the clinic? J. Kuhle (Basel, CH)

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		Educational Session, Hall G
13:45 - 15:15		Educational Session 10: NMO-spectrum disorders: current concepts and clinical management
		Level: Intermediate (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)
		Chairs J. Palace (Oxford, UK) F. Paul (Berlin, DE)
13:45 - 14:15	70	NMOSD: an update J. Palace (Oxford, UK)
14:15 - 14:45	71	Making the diagnosis in challenging cases with case studies K. Fujihara (Sendai, JP)
14:45 - 15:15	72	Treatment challenges in NMOSD with case studies F. Paul (Berlin, DE)
		Educational Session, Hall H
13:45 - 15:15		Educational Session 11: Getting it right - accurate diagnosis and avoiding misdiagnosis of MS
		Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)
		Chairs G. Arrambide (Barcelona, ES) W. Brownlee (London, UK)
13:45 - 14:05	73	MS: What's typical, what's not? W. Brownlee (London, UK)
14:05 - 14:25	74	Applying the 2017 McDonald criteria to make an accurate diagnosis G. Arrambide (Barcelona, ES)
14:25 - 14:45	75	Tips for avoiding misdiagnosis A. Solomon (Burlington, US)
14:45 - 15:15	76	Interactive case presentations for discussion G. Arrambide (Barcelona, ES) W. Brownlee (London, UK) A. Solomon (Burlington, US)

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14:00 - 15:00		<p>Satellite Symposium, Hall A</p> <p>European Charcot Foundation Symposium: Explaining environmental impact in MS</p> <p>Chairs G. Comi (Milan, IT) M.P. Amato (Florence, IT)</p>
14:00 - 14:15	77	<p>New epidemiological evidence of the role of environment on MS risk and evolution A. Ascherio (Boston, US)</p>
14:15 - 14:30	78	<p>Role of intestinal microbiome G. Krishnamoorthy (Martinsried, DE)</p>
14:30 - 14:45	79	<p>Smoke and air pollution exposure: impact on MS L. Alfredsson (Stockholm, SE)</p>
14:45 - 15:00	80	<p>Discussion</p>
14:00 - 15:15		<p>Young Scientific Investigators' Session, Hall D</p> <p>Young Scientific Investigators' Session 2 - Clinical</p> <p>Chairs L. Airas (Turku, FI) D. Ontaneda (Cleveland, US)</p>
14:00 - 14:15	81	<p>Supra- and infratentorial atrophy following clinically isolated syndromes: a 30-year follow-up study L. Haider (London, UK)</p>
14:15 - 14:30	82	<p>Evaluating the risk of macrovascular events and mortality in individuals with multiple sclerosis in England: a population-based nested case-control study R. Palladino (London, UK)</p>
14:30 - 14:45	83	<p>Infusion-related events during natalizumab: no need for post-infusion monitoring F.C. Loonstra (Amsterdam, NL)</p>
14:45 - 15:00	84	<p>IFNβ is NOT effective in MOG-IgG+ disease: a study in 26 MOG-IgG+ Japanese patients K. Kaneko (Miyagi, JP)</p>
15:00 - 15:15	85	<p>Inflammatory activity associated with increased rate of retinal and brain neuro-axonal injury in early MS: results from dynamic evolution in Barcelona MS-Visualpath cohort study I. Pulido-Valdeolivas (Barcelona, ES)</p>

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		Nurses' Session, Hall E
14:00 - 15:15		Nurses' Session 1: MS nurses practice nursing in many different ways
		Chairs
		B. Porter (London, UK)
		J. Deacon (Christchurch, NZ)
14:00 - 14:25	86	Cognitive empowerment and psycho-education for MS patients. The role of Athens Naval Hospital "Cognitive Empowerment Center" in MS care.
		E. Koukiotou (Athens, GR)
14:25 - 14:50	87	Yoga's influence in MS patients' well-being, life quality and body awareness
		S.G. Kristensen (Copenhagen, DK)
14:50 - 15:15	88	Title to be announced
		M.A. Robles (Barcelona, ES)
		Scientific Session, Hall A
15:45 - 17:15		Scientific Session 3: DMT in RRMS
		Chairs
		F. Sellebjerg (Copenhagen, DK)
		E. Kubala Havrdová (Prague, CZ)
15:45 - 16:05	89	DMTs in RRMS 2019 - what remains to be achieved
		G. Giovannoni (London, UK)
16:05 - 16:25	90	Comparative effectiveness studies in RRMS in the real world
		T. Spelman (Stockholm, SE)
		Platform presentations of related original papers
16:25 - 16:37	91	A Bayesian design to increase the power of multiple sclerosis clinical trials
		L. Carmisciano (Genoa, IT)
16:37 - 16:49	92	Effect of ocrelizumab versus interferon β-1a on retinal thinning and association with brain volume loss in the OPERA I and OPERA II phase III trials in relapsing multiple sclerosis
		A. Green (San Francisco, US)
16:49 - 17:01	93	Efficacy and safety of ponesimod compared to teriflunomide in patients with relapsing multiple sclerosis: results of the randomized, active-controlled, double-blind, parallel-group phase 3 OPTIMUM study
		L. Kappos (Basel, CH)
17:01 - 17:13	94	Big multiple sclerosis data network: marginal structural models confirm the long-term impact of DMTs on disability progression
		G. Lucisano (Pescara, IT)

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			Scientific Session, Hall B
15:45 - 17:15			Scientific Session 4: What determines the long-term outcome of MS?
			Chairs
			M. Magyari (Copenhagen, DK) R.A. Marrie (Winnipeg, CA)
15:45 - 16:05	95		Course of MS in the era of disease modification A. Manouchehrinia (Stockholm, SE)
16:05 - 16:25	96		Co-morbidities and the course of MS R.A. Marrie (Winnipeg, CA)
			Platform presentations of related original papers
16:25 - 16:37	97		Radiologically Isolated Syndrome: a 10-year follow-up study to identify factors predicting a clinical event C. Lebrun-Frenay (Nice, FR)
16:37 - 16:49	98		Long term outcomes. Changes in MS prognosis through the CIS Barcelona cohort: a 25-year tale M. Tintoré (Barcelona, ES)
16:49 - 17:01	99		Introduction of new diagnostic criteria for multiple sclerosis and time interval between disease onset and MS diagnosis L. Stawiarz (Stockholm, SE)
17:01 - 17:13	100		Spectral-domain optical coherence tomography predicts disability in multiple sclerosis up to 10 years later J. Lambe (Baltimore, US)
			Scientific Session, Hall C
15:45 - 17:15			Burning Debate: It is inappropriate to prescribe interferon-beta and glatiramer acetate for active relapsing MS
			This burning debate will address the topical motion: From a healthcare provider perspective, it is now inappropriate to prescribe 1st generation injectables (interferon-beta and glatiramer acetate) to newly diagnosed patients with active relapsing MS. The live audience are encouraged to participate in the session by tweeting comments and questions using #burningdebate. At the end of the two presentations, the audience can vote on who should win the debate through twitter.
			Chairs
			J. Palace (Oxford, UK)
15:45 - 15:50	101		Introduction J. Palace (Oxford, UK)
15:50 - 16:10	102		Against M. Zakaria (Cairo, EG)

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16:10 - 16:30	103	For G. Kobelt (Stockholm, SE)
16:30 - 17:15	104	Discussion J. Palace (Oxford, UK) M. Zakaria (Cairo, EG) G. Kobelt (Stockholm, SE)
15:45 - 17:00		Young Scientific Investigators' Session, Hall D Young Scientific Investigators' Session 3 - MRI Chairs G. Comi (Milan, IT) M. Inglese (Genoa, IT)
15:45 - 16:00	105	Subtyping and staging progressive MS using MRI A. Eshaghi (London, UK)
16:00 - 16:15	106	Manganese-enhanced magnetic resonance imaging of multiple sclerosis: a case series D.S. Reich (Bethesda, US)
16:15 - 16:30	107	Functional imaging biomarkers of cognitive impairment in multiple sclerosis: a resting-state magnetoencephalography study S.D. Kulik (Amsterdam, NL)
16:30 - 16:45	108	The central vein sign and iron rings: insights from a large cohort of patients with multiple sclerosis and mimicking disorders M. Clarke (Barcelona, ES)
16:45 - 17:00	109	Hippocampal regional vulnerability to damage differs between MS and neuromyelitis optica L. Cacciaguerra (Milan, IT)
15:45 - 17:00		Nurses' Session, Hall E Nurses' Session 2: Understanding patient experience to help improve care Chairs A.K. Krakau Hansen (Copenhagen, DK) C.M. Oriol Pujol (Barcelona, ES)
15:45 - 16:10	110	Taming the beast: exploring the lived experience of RRMS using a life history approach T. Burke (Sydney, AU)
16:10 - 16:35	111	Capturing patient experience and team challenges in delivery of quality services to people living with multiple sclerosis and severe spasticity L. Keenan (London, UK)

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16:35 - 17:00	112	<p>Finding patients with progressive MS who are lost in the system, a team approach N. Barker (London, UK)</p>
15:45 - 17:15		<p>Educational Session, Hall F</p> <p>Educational Session 12 (MAGNIMS): Big data and deep learning: new avenues for MRI research in MS?</p> <p>Level: Advanced (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs M.A. Rocca (Milan, IT) H. Vrenken (Amsterdam, NL)</p>
15:45 - 16:15	113	<p>Big data in MRI research in MS M.A. Rocca (Milan, IT)</p>
16:15 - 16:45	114	<p>Collaborative research environments and crowd-sourced science in MRI in MS H. Vrenken (Amsterdam, NL)</p>
16:45 - 17:15	115	<p>Machine learning in MRI research in MS D. Pareto (Barcelona, ES)</p>
15:45 - 17:15		<p>Educational Session, Hall G</p> <p>Educational Session 13: Pregnancy management in MS</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs M.K. Houtchens (Brookline, US) K. Hellwig (Bochum, DE)</p>
15:45 - 16:15	116	<p>Reproductive counseling in MS: guidance and guidelines in 2019 M.K. Houtchens (Brookline, US)</p>
16:15 - 16:45	117	<p>Disease modifying medications in women with MS planning a pregnancy: 2019 update K. Hellwig (Bochum, DE)</p>
16:45 - 17:15	118	<p>Postpartum management in women with MS R. Bove (San Francisco, US)</p>

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15:45 - 17:15

Educational Session, Hall H

Educational Session 14: Diagnosis and management of other neuroinflammatory diseases (CLIPPERS, anti-GFAP, neurosarcoidosis, other systemic autoimmune diseases with CNS involvement)

Level: Basic

(Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)

Chairs

D.M. Wingerchuk (Scottsdale, US)
E. Flanagan (Rochester, US)

15:45 - 16:15 119

Autoimmune GFAP astrocytopathy: characteristics and comparison to AQP4 and MOG-related disease

E. Flanagan (Rochester, US)

16:15 - 16:45 120

Neurosarcoidosis, CNS vasculitis, and Behcet's disease

J. Gelfand (San Francisco, US)

16:45 - 17:15 121

CLIPPERS and other rare CNS inflammatory syndromes

D.M. Wingerchuk (Scottsdale, US)

17:15 - 19:15

Poster Sessions, Poster Exhibition

Poster Session 1

P347

Optic nerve topography in CIS: does the use of visual evoked potentials improve the diagnosis of MS?

A. Vidal-Jordana (Barcelona, ES)

P348

The MAGNIMS dissemination in space criteria: do they improve the 2017 McDonald criteria?

V. Camera (Modena, IT)

P349

Factors influencing patient satisfaction with the first diagnostic consultation in multiple sclerosis: a Swiss Multiple Sclerosis Registry (SMSR) study

C.P. Kamm (Lucerne, CH)

P350

A Fully Automated Approach for Differential Diagnosis Support in Multiple Sclerosis Based on the Central Vein Sign

M.J. Fartaria (Lausanne, CH)

P351

Differential distribution of oligoclonal bands in CSF of MS patients compared to other demyelinating diseases and vasculitis

L. Negrotto (Buenos Aires, AR)

P352

Application of the 2017 McDonald Criteria for the diagnosis of multiple sclerosis to patients with clinically isolated syndromes

A. Barros (Lisboa, PT)

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- P353 Diagnostic value of McDonald 2017 criteria for fulfilling the diagnosis of Relapsing-Relapsing Multiple Sclerosis (RRMS) in clinically isolated syndromes (CIS)**
P. Baena Palomino (Seville, ES)
- P354 Tumefactive inflammatory leukoencephalopathy in cocaine users: report of three cases**
L.M. Pessini Ferreira (Barcelona, ES)
- P355 The Central Vein Sign identifies patients diagnosed with multiple sclerosis probably carrying different diseases and showing milder disease course**
L. Massacesi (Florence, IT)
- P356 Is the neuroradiological differentiation between Fabry disease and multiple sclerosis possible?**
P. Rommer (Vienna, AT)
- P357 Clinical features and prognosis of patients with late-onset neuromyelitis optica spectrum disorders in a Latin American population**
E. Carnero Contentti (Buenos Aires, AR)
- P358 Diagnosis, Severity, and Recovery of Attacks in the N-MOMentum Study of Inebilizumab in Neuromyelitis Optica Spectrum Disorder**
B. Weinshenker (Rochester, US)
- P359 Influence of migration on the prognosis of neuromyelitis optica spectrum disorder in non-Caucasian patients**
R. Soares dos Reis (Porto, PT)
- P360 Prodromal headache in MOG-Antibody positive Optic Neuritis**
S. Assemer (Berlin, DE)
- P361 Clinical phenotypes, predictors of relapse, and response to treatment in children and adults with myelin oligodendrocyte glycoprotein-antibody associated disorders: analysis from two large multiple sclerosis centers**
W. Vargas (New York, US)
- P362 HLA association in MOG-IgG and AQP4-IgG related inflammatory diseases of the CNS in the Dutch Caucasian population**
A. Bruijstens (Rotterdam, NL)
- P363 A 28-year observational study of disease activities in a Japanese cohort of neuromyelitis optica spectrum disorders**
E. Saji (Niigata, JP)
- P364 Does isolated area postrema syndrome occur in Myelin oligodendrocyte Glycoprotein-IgG Associated Disorders (MOGAD)? A systematic analysis of the clinical and radiological associations of intractable nausea, vomiting or hiccups in 171 MOGAD patients**
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- P365 Poor visual outcome in neuromyelitis optica is associated with early disease onset and use of first-line oral therapy**
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- P368 Anxiety, Depression and Fatigue in Youth with MOG-Associated Neuroinflammation: A Preliminary Report**
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- P371 Increased disability in late-onset multiple sclerosis**
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- P373 Quality of Life in Pediatric Patients with Anti-MOG Demyelinating Disease versus Multiple Sclerosis**
M. Parker (Washington, US)
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G. Longoni (Toronto, CA)
- P375 Long-term Safety and Efficacy of Delayed-Release Dimethyl Fumarate in Paediatric Patients With Relapsing-Remitting Multiple Sclerosis: a Long-term Extension of the FOCUS Study**
R. Alroughani (Dasman, KW)
- P376 Prevalence of paediatric-onset multiple sclerosis in France, disease management and use of disease-modifying therapies in this specific population**
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O. Abdel-Mannan (London, UK)
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- P381 Immunological features and clinical outcome in pediatric patients with longitudinal extensive transverse myelitis (LETM)**
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- P382 Effect of Siponimod on Cortical Grey Matter and Thalamic Volume in Patients with Secondary Progressive Multiple Sclerosis - Results of the EXPAND Study**
D.L. Arnold (Montreal, CA)
- P383 Opportunities and challenges for conducting research on Secondary Progressive Multiple Sclerosis across International Multiple Sclerosis registries through a research network collaboration**
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M. Hardmeier (Basel, CH)
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P. Vermersch (Lille, FR)
- P386 Risk of conversion to secondary progressive multiple sclerosis is not associated with relapse rate under natalizumab treatment**
L. Romero-Pinel (L'Hospitalet de Llobregat, ES)
- P387 Gastrointestinal Tolerability and Absorption of R- Versus Racemic Lipoic Acid in Progressive Multiple Sclerosis: A Randomized Cross-over Trial**
R. Spain (Portland, US)
- P388 Capacity for exercise-induced changes in brain excitability is retained in progressive multiple sclerosis with greater benefit in the hemisphere corresponding to the stronger hand**
A. Chaves (St John's, CA)
- P389 Outcome of Secondary Progressive Multiple Sclerosis patients treated with rituximab or alemtuzumab**
C. Aguirre (Madrid, ES)
- P390 Ageing with Multiple Sclerosis: The role of calendar age and disease duration for disease outcomes and co-morbidity occurrence in the Swiss Multiple Sclerosis Registry**
V. von Wyl (Zurich, CH)
- P391 Progression of bladder dysfunction over 10 years is worse in women and predicts future worsening in EDSS**
T. Kaplan (Boston, US)
- P392 Individual risk of multiple sclerosis in clinically isolated syndromes: a multicenter prospective Italian study**
V. Martinelli (Milan, IT)
- P393 Disease activity, brain atrophy and long term clinical outcome of Multiple Sclerosis**
A. Scalfari (London, UK)

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- P394 The epidemiology of myelin oligodendrocyte glycoprotein antibody associated disorders**
E. Flanagan (Rochester, US)
- P395 Late-onset multiple sclerosis incidence is increasing in Parma province, Northern Italy**
E. Curti (Parma, IT)
- P396 Concussion in adolescence and the risk of developing multiple sclerosis**
C.A. Povoletto (London, CA)
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- P398 BOT-MS: A New Database of a Complete MS Population in South-East Norway Confirming Better Prognosis in Recently Diagnosed Patients**
C. Simonsen (Heggedal, NO)
- P399 Incidence of paediatric neuromyelitis optica spectrum disorder and myelin oligodendrocyte glycoprotein antibody-associated disease in Denmark 2008–2018: A nationwide, population-based cohort study**
M.S. Boesen (Herlev, DK)
- P400 Medication adherence in multiple sclerosis: a model for other chronic diseases?**
C. Evans (Saskatoon, CA)
- P401 Incidence of late and very late onset of MS, and analysis of clinical features that may help predict disability progression**
R. Roy (Ottawa, CA)
- P402 Danish experience with cladribine tablets in the treatment of relapsing multiple sclerosis: A nationwide study**
P.S. Sørensen (Copenhagen, DK)
- P403 Linking NARCOMS, a Multiple Sclerosis Patient Registry, to US Healthcare Claims Databases: Introducing a Collaborative, Comprehensive Research Database for Observational Studies**
A. Salter (St. Louis, US)
- P404 Prevalence of multiple sclerosis in Belgrade (Serbia): a 34-year follow-up study**
T. Pekmezovic (Belgrade, RS)
- P405 Application of the 2017 McDonald criteria for the diagnosis of Multiple Sclerosis after a first demyelinating event in patients from Argentina**
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- P406 Temporal trends of prevalence of multiple sclerosis in Santiago de Compostela (Northern Spain)**
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- P407 Multiple sclerosis disease course and immunotherapy are associated with the prevalence of immunoglobulin deficiency**
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- P408 Identifying patients with neuromyelitis optica spectrum disorder in US insurance claims databases**
C. Costantino (Basel, CH)
- P409 Pregnancy in women with multiple sclerosis treated with natalizumab: a re-appraisal of maternal risks in a long-term follow-up**
E. Portaccio (Florence, IT)
- P410 Pregnancy in women with active multiple sclerosis increases the risk of disability progression**
E. Portaccio (Florence, IT)
- P411 Effect of Fingolimod on Pregnancy Outcomes in Patients with Multiple Sclerosis**
K. Hellwig (Bochum, DE)
- P412 Anti CD20 therapies and pregnancy in neuroimmunological disorders - a case series from Germany**
K. Hellwig (Bochum, DE)
- P413 Rituximab, Multiple Sclerosis and Pregnancy**
K. Fink (Stockholm, SE)
- P414 Intravenous immunoglobulins for the prevention of postpartum relapses in multiple sclerosis**
M. Habek (Zagreb, HR)
- P415 Short chain fatty acids levels in serum of pregnant multiple sclerosis patients**
S. Perez-Perez (Madrid, ES)
- P416 Pregnancy, breastfeeding, and timing of onset of clinically isolated syndrome and multiple sclerosis**
A.-L. Nguyen (Parkville, AU)
- P417 Influence of Pregnancy On Disease Progression and Activity Of Neuromyelitis Optica Spectrum Disorder (NMOSD) Among Seropositive Female Patients In Isfahan , Iran**
F. Ashtari (Isfahan, IR)
- P418 A multicenter international study to evaluate different aspects of relationship between MS and pregnancy**
A. Altintas (Istanbul, TR)
- P419 Obstructive Sleep Apnea in Multiple Sclerosis: The Relationship of Lesion Location, Apnea Hypopnea Index, and Brain Atrophy**
E. Levit (Brookline, US)
- P420 Change in cognitive processing speed is associated with cortical grey matter and thalamic volume loss in patients with relapsing-remitting multiple sclerosis**
R.H. Benedict (Buffalo, US)
- P421 Identification of longitudinal trajectories of cognitive change using the MSReactor cognitive battery**
D. Merlo (Melbourne, AU)

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- P422 Cognitive profile of African-American and Caucasian patients with Multiple Sclerosis**
M. Petracca (New York, US)
- P423 Sensory-motor disability in African-American and Caucasian patients with Multiple Sclerosis**
M. Petracca (New York, US)
- P424 Patients with multiple sclerosis with recurrent emergency attendances and hospital admissions for urinary tract infections**
V. Li (London, UK)
- P425 Trigeminal neuralgia in multiple sclerosis patients: prevalence, treatment efficacy and brain MRI lesion distribution**
T. Castillo-Triviño (San Sebastian, ES)
- P426 Disability-Specific Clinical Assessments in Multiple Sclerosis Reveal the Importance of Multidimensional Evaluation**
N. Ragan (San Francisco, US)
- P427 Atlas-based tract damage mapping improves 4-year forecast of EDSS in multiple sclerosis**
V. Ravano (Lausanne, CH)
- P428 Prevalence of cognitive and psychiatric symptoms in patients with Multiple Sclerosis in accordance with the NEDA concept**
A.C. Piccolo (São Paulo, BR)
- P429 Quantifying fatigue using keystroke dynamics in multiple sclerosis**
K.H. Lam (Amsterdam, NL)
- P430 Gait analysis in Multiple Sclerosis - Calculation of 2-minute walk (2MWT) walking distance by artificial intelligence**
M.L. Weidemann (Dresden, DE)
- P431 Cognitively demanding speech tasks are predictive of functional and structural cerebellar dysfunction**
G. Noffs (Melbourne, AU)
- P432 MSCopilot (R) , a new Multiple Sclerosis self-assessment digital solution: results of a comparative study versus standard tests. A randomized clinical trial**
E. Maillart (Paris, FR)
- P433 A Longitudinal Assessment of the Patient Determined Disease Steps Scale in Clinical Practice to Define Disease Progression**
C. Makin (Cambridge, US)
- P434 Multiple Sclerosis Severity Score (MSSS) helps predict relapses and recovery from disability in patients treated for multiple sclerosis in the MSBase model**
I. Kister (New York, US)

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- P435** **Effect of siponimod on disability in EXPAND re-examined with two new subscales of the Expanded Disability Status Scale in patients with secondary progressive multiple sclerosis**
G. Cutter (Birmingham, US)
- P436** **A Natural Language algorithm identifies Multiple Sclerosis relapses, MRI new T2 Lesions, and existing GAD Enhancing Lesions from clinical notes and Radiology MRI notes with high sensitivity**
T. Krishnakumar (San Francisco, US)
- P437** **The First Arabic Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS)**
H. Darwish (Beirut, LB)
- P438** **Correlation and comparison between three upper limb objective measures in Multiple Sclerosis Patients**
C.M. Solaro (Moncrivello (VC), IT)
- P439** **Study for the validation of the FeetMe (R) integrated sensor insole system compared to GAITRite (R) system to assess the characteristics of the gait in patients with multiple sclerosis: Results of the interim analysis**
A. Granja Domínguez (Castilleja de la Cuesta, ES)
- P440** **The evoked potential score predicts disease progression in early multiple sclerosis**
L. Crnosija (Zagreb, HR)
- P442** **Monitoring Cognitive Function in People with Multiple Sclerosis: A 2 year Longitudinal Comparison of Traditional and Computerized Cognitive Testing**
D. Golan (Haifa, IL)
- P444** **Relation of fatigue to clinical and patient-reported disease measures in MS - baseline results from the CombatMS Study**
S. Englund (Stockholm, SE)
- P445** **Confirmed time-to event clinically relevant change in multiple sclerosis (MS) impact score (MSIS)-29 as a patient-reported outcome (PRO) outcome to assess disease progression in MS**
R. Middleton (Swansea, UK)
- P446** **Psychometric characteristics of the OLQ-13 scale to measure Sense of coherence in multiple sclerosis patients**
B. Stern (Maribor, SI)
- P447** **The treatment status quo among patients with multiple sclerosis: prevalence and predisposing factors (PERCEPTIONS-MS Study)**
G. Saposnik (Toronto, CA)
- P448** **SMcare2.0 app: a pilot study to assess the impact of a new nursing e-care application on quality of life of patients with MS**
F. Pastore (Bari, IT)
- P449** **Perception of severity of disease in patients with multiple sclerosis**
L. Bau (L'Hospitalet de Llobregat, ES)

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- P450** **Baseline characteristics of the first patients included in the OFSEP high definition cohort and relationship between quality of life and patients' characteristics**
R. Casey (Lyon, FR)
- P451** **Towards a clinically validated PRO measurement of disability in people with MS**
W. Rodgers (Swansea, UK)
- P452** **Teri-LIFE: An observational study of quality of life in patients with relapsing remitting multiple sclerosis treated with teriflunomide in the Nordic region**
H.H. Nielsen (Odense, DK)
- P453** **SMILE: a predictive model for Scoring the severity of relapses in Multiple sclerosis**
F. Lejeune (Nantes, FR)
- P454** **The fiscal consequences of public health investments in disease-modifying therapies for the treatment of relapsing-remitting multiple sclerosis in Sweden**
A. Kavaliunas (Stockholm, SE)
- P455** **Increased socioeconomic burden in patients with primary progressive multiple sclerosis: A Danish nationwide population-based study**
M. Blinkenberg (Copenhagen, DK)
- P456** **Upper limb function impairment in primary progressive multiple sclerosis**
F. Gottschalk (Wismar, DE)
- P457** **The association between disease-modifying therapies for multiple sclerosis and hospitalisations on a population level**
C. Evans (Saskatoon, CA)
- P458** **Saccadic delay in multiple sclerosis: a quantitative description**
J. Nij Bijvank (Amsterdam, NL)
- P459** **Changes in low-contrast letter acuity predict lesion accumulation at 1 year after the onset of a clinically isolated syndrome**
S. Collorone (London, UK)
- P460** **Monitoring therapeutic effect on anterior visual system in multiple sclerosis using optical coherence tomography**
Y. Huang-Link (Linköping, SE)
- P461** **The impact of smoking on cognition and brain atrophy in patients with multiple sclerosis in a large clinical cohort**
E. Alshehri (Cleveland, US)
- P462** **Initiation of higher-efficacy disease-modifying therapy is associated with a reduction in depressive symptom severity in a large population of people with multiple sclerosis**
K. Fitzgerald (Baltimore, US)

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- P463 Patient demographics and MS-related complications and comorbidities associated with hospital admissions among MS patients in the United States**
D. Taira (Hilo, US)
- P464 Timing is Everything: Comorbid Conditions Diagnosed after Multiple Sclerosis have Greater Effect on Disability, Participation and Quality of Life Among Older People with Multiple Sclerosis**
M.C. Kirkland (St. John's, CA)
- P465 Adrenergic hyperactivity predicts people with multiple sclerosis who will develop elevated blood pressure**
M. Habek (Zagreb, HR)
- P466 Undiagnosed and under-treated depression negatively impacts lifestyle behaviors, participation and health-related quality of life among older people with multiple sclerosis**
M. Ploughman (St. John's, CA)
- P467 Prevalence and Impact of Autoimmune Diseases in a Single Center MS Cohort**
D. Aslan (Essen, DE)
- P468 The relationship between cognition, depression, fatigue, and disability in patients with multiple sclerosis**
P. Yigit (Izmir, TR)
- P469 Deep learning-based detection of cortical lesions in Multiple Sclerosis patients with FLAIR, DIR, and MP2RAGE MRI sequences**
F. La Rosa (Lausanne, CH)
- P470 Chitinase 3-like 1 expression in the brain of different multiple sclerosis phenotypes**
S. Gil-Perotin (Valencia, ES)
- P471 A conservative approach for analysis of single nucleus RNA-seq from post-mortem patient samples: An improved strategy to identify therapeutic targets in progressive forms of MS**
J.D. Proto (Framingham, US)
- P472 The ubiquitin-editing enzyme A20 in a murine model of the demyelination**
F. Montarolo (Orbassano, IT)
- P473 The effect of Neuromyelitis Optica (NMO)-IgG and anti-IL-6 receptor monoclonal antibody (SA237;satralizumab) for barrier function at the Blood-Brain Barrier in vitro**
Y. Takeshita (Ube-Yamaguchi, JP)
- P474 Antibody-mediated damage to the visual system in a neuromyelitis optica animal model**
L. Petrikowski (Bochum, DE)
- P476 Simultaneous cuprizone intoxication and active induction of experimental autoimmune encephalomyelitis to study MS lesion development in the forebrain**
V. Yakimov (Munich, DE)

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- P477 Experimental model of isolation, cultivation and exposure to cladribine of T lymphocytes from multiple sclerosis patients: a step toward personalised treatment**
R. Balasa (Targu Mures, RO)
- P478 Newly repopulated microglial-like cells following genetic microglial depletion exacerbated experimental autoimmune encephalomyelitis (EAE) in female but not in male CX3CR1CreER/+Rosa26DTA/+ mice**
J. Han (Stockholm, SE)
- P479 Proteomic analysis of cerebral cortex in cholecalciferol treated EAE mice**
D. Čierny (Martin, SK)
- P480 Genomic comparison of immune cells in the periphery and the central nervous system in multiple sclerosis patients**
S.K. Bedri (Stockholm, SE)
- P481 DNA methylation changes in brains from Multiple Sclerosis patients**
L. Kular (Stockholm, SE)
- P482 Investigation of the mechanisms by which the Multiple Sclerosis associated genetic variant CD226 Gly307Ser influences T cell functions**
E. Morandi (Toulouse, FR)
- P483 Influence of genetic risk variants for multiple sclerosis on alternative pre-mRNA splicing**
E. Putscher (Rostock, DE)
- P484 Genetics of multiple sclerosis disease severity**
S. Loomis (Cambridge, US)
- P485 Epigenetic Age Acceleration in Multiple Sclerosis Patients**
V. Maltby (Callaghan, AU)
- P486 The role of miR-155, a regulator of inflammation, in Multiple Sclerosis development**
B. Leal (Porto, PT)
- P487 Can the effects of Vitamin D on MS risk be explained by its impact on DNA methylation?**
L. Ong (Westmead, AU)
- P488 Effects of IFN β therapy on DNA hydroxymethylation and its potential influence on the therapeutic response in multiple sclerosis (MS)**
P. Urbaneja-Romero (Málaga, ES)
- P489 Pathogenic role of mitochondrial DNA through NLRP3 inflammasome in vitro and in vivo mouse model of neuromyelitis optica spectrum disorder**
K. Yamashita (Suita, Osaka, JP)
- P490 Integrated single cell analysis of blood and cerebrospinal fluid leukocytes in multiple sclerosis**
G. Meyer zu Hörste (Münster, DE)

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- P491 NLRP3 inflammasome activation in multiple sclerosis and experimentally-induced demyelination**
D. Galloway (St. John's, CA)
- P492 Chemokine receptor 5high effector-memory T_H1 cells perform central nervous system immune surveillance in humans via Granzyme K-mediated transendothelial diapedesis**
S. Herich (Münster, DE)
- P493 Disease-characteristic TCRs recognize CMV in Japanese MS patients with HLA-DRB1*04:05; a novel approach with GLIPH**
F. Hayashi (Fukuoka, JP)
- P494 NG2 expression on B cells in multiple sclerosis patients**
I. Gandoglia (Genoa, IT)
- P495 Immunomodulatory effect of pregnancy on peripheral blood and decidual leukocyte populations in patients with multiple sclerosis**
F. Montarolo (Orbassano, IT)
- P496 Sensitive detection of rare myelin oligodendrocyte glycoprotein-specific T-cells in multiple sclerosis**
M. Bronge (Stockholm, SE)
- P497 In patients with multiple sclerosis, natalizumab treatment selectively reduces plasmablasts in blood**
A.C. Henriksen (Copenhagen, DK)
- P498 A bioinformatics approach to understand the regulation of TSPO gene expression in myeloid cells**
N.N. Fancy (London, UK)
- P499 Transcriptional signatures of primary human microglia across the developmental time line at the single cell level**
M. Yaqubi (Montreal, CA)
- P500 Metabolic alterations of T cells from patients with primary progressive multiple sclerosis**
M. Eschborn (Münster, DE)
- P501 Antibodies specific for Epstein-Barr virus antigens enter central nervous system cells in culture**
J. Lindsey (Houston, US)
- P502 Mapping the baseline gut microbiome profiles in multiple sclerosis first-degree family members**
Z. Xia (Pittsburgh, US)
- P503 Lachnoclostridium species are elevated in aquaporin-4 (AQP4+) neuromyelitis optica patients in India and exhibit sequence similarity with AQP4**
L. Pandit (Mangalore, IN)
- P504 Several 'anti-retroviral' nucleoside analogues have in-vitro efficacy against Epstein-Barr Virus**
N. Drosu (Cambridge, US)

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- P505 Gut-CNS axis as mediator of protective effect of conjugated linoleic acid on CNS autoimmunity**
A.-K. Fleck (Münster, DE)
- P506 Selected Clostridia strains improves experimental autoimmune encephalomyelitis outcome**
L. Calvo-Barreiro (Barcelona, ES)
- P507 Vitamin D levels in Australian patients - levels according to medical speciality, year, age, gender, and season**
M. Monif (Prahan, AU)
- P508 Impact of particulate matter of diameter inferior to 2,5 micrometer exposure on multiple sclerosis relapse**
E. Januel (Paris, FR)
- P509 Multiple Sclerosis: MRI enhancing lesions related with tropical nights**
A. Belenguer Benavides (Castellón de la Plana, ES)
- P510 Th17 cells alter neuronal function**
E. Ellwardt (Mainz, DE)
- P511 Role of Toxic Astrocytes in Multiple Sclerosis Progression**
R. Masvekar (Bethesda, US)
- P512 Siponimod ameliorates inflammation and axonal injury in a novel multiple sclerosis model**
N. Behrangi (Rostock, DE)
- P513 Endothelial damage in patients with neuromyelitis optica spectrum disorder with aquaporin-4 IgG**
H. Kuroda (Sendai, JP)
- P514 Multiple sclerosis brain transmits pathology to humanized transgenic mice potentially via protein misfolding pathway**
S. Tsutsui (Calgary, CA)
- P515 Patterns of grey matter atrophy in patients with MS: a multivariate analysis using source-based morphometry**
P. Valsasina (Milan, IT)
- P516 Single Nucleus RNA Sequencing of Post-Mortem Multiple Sclerosis Cortical Grey Matter**
A.M. Smith (London, UK)
- P517 Corneal Confocal Microscopy: A Rapid Non-Invasive Surrogate Endpoint for Axonal Loss in Multiple Sclerosis**
I.N. Petropoulos (Doha, QA)
- P518 Effect of mitochondrial calcium channel blockers on oxidative stress-mediated alterations of mitochondria in spinal roots**
R. Ulshöfer (Berlin, DE)

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- P519 Prognostic impact of upper cervical cord atrophy, but not hypointense T1 cord lesions at baseline for reaching EDSS \geq 3.0 within three years, in a large multicentre early MS cohort**
C. Ahlborn (Bochum, DE)
- P520 Association of binding heterogeneity of the TSPO PET ligand [11C]PBR28 in deep white matter lesions and their longitudinal MRI evolution**
S. Podmore (London, UK)
- P521 T1/T2 ratios in MS: a longitudinal study in CIS patients with clinical associations**
M. Boaventura (Barcelona, ES)
- P522 Gadolinium contrast may be unnecessary when evaluating for interval disease activity in patients with multiple sclerosis**
T. Johnson (Burlington, US)
- P523 Longitudinal variability of spinal cord atrophy as measured by the mean upper cervical cord area**
C. Chien (Berlin, DE)
- P524 Measurement of white matter atrophy in multiple sclerosis using diffusion weighted imaging**
L. Storelli (Milan, IT)
- P525 Cerebellar cortical laminar analysis of T1 relaxation times at 7T MRI shows widespread cerebellar cortex damage in early relapsing-remitting MS patients but no correlation with clinical deficits**
R. Galbusera (Basel, CH)
- P526 Cortical damage in multiple sclerosis along the course of the disease**
E. Solana (Barcelona, ES)
- P527 Structural brain connectivity: a measure to discriminate patients with multiple sclerosis from healthy volunteers**
E. Solana (Barcelona, ES)
- P528 Normal appearing white matter and lesional integrity in MOG-Ab disease and MS: a diffusion-weighted imaging study**
S. Messina (Oxford, UK)
- P529 Deep learning analysis applied to multi-parametric advanced MRI shows higher myelin content and neurite density in juxtacortical lesions compared to periventricular lesions**
P.-J. Lu (Allschwil, CH)
- P530 A matter of atrophy: differential impact of brain and spine volume loss on disability worsening in MS**
S. Ruggieri (Rome, IT)
- P531 Clinical disability measures and quality of life correlate with spinal cord areas: A baseline analysis from the SPI2 phase 3 clinical trial of MD1003 in progressive MS**
A. Alexander (San Francisco, US)

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- P532 The structural disconnectome in the MS brain**
P. Villoslada (Barcelona, ES)
- P533 Association between humoral cerebrospinal fluid markers, periventricular lesion density and cortical thickness in early multiple sclerosis**
G. Cooper (Berlin, DE)
- P534 Reduced arterial compliance along the cerebrovascular tree predicts cognitive impairment in Multiple Sclerosis**
D.K. Sivakolundu (Dallas, US)
- P535 Myelin damage in normal appearing white matter (NAWM) contributes to cognitive impairment in MS**
S. Abel (Vancouver, CA)
- P536 Dynamic modular-level alterations of structural-functional coupling in clinically isolated syndrome**
I. Koubiyr (Bordeaux, FR)
- P537 Classification of MS patients' future impairment status using machine learning methods applied to baseline Quantitative Susceptibility Mapping imaging biomarkers**
C. Tozlu (New York, US)
- P538 Cortical quantitative MRI predicts the cognitive status in patients with relapsing-remitting Multiple Sclerosis**
R.-M. Gracien (Frankfurt, DE)
- P539 Large-scale Chinese normative volumes of brain structures as assessed by SIENAX2.0**
J. Zhang (Siena, IT)
- P540 Quantitative comparison of brain volume measures as determined from MP2RAGE and MPRAGE images**
D. Pareto (Barcelona, ES)
- P541 A pilot study of thalamic atrophy trajectories in MS patients with private versus public health insurance**
M.L. Martin (Philadelphia, US)
- P542 Coming off cannabis: a cognitive and functional MRI study in people with Multiple Sclerosis (pwMS)**
A. Feinstein (Toronto, CA)
- P543 Multiple sclerosis alters white matter microvascular perfusion**
L.K.M. Sundvall Germeys (Aarhus, DK)
- P544 Brain and spinal cord atrophy in relapsing remitting multiple sclerosis, aquaporin-4-Ab neuromyelitis optica spectrum disorder and myelin oligodendrocyte glycoprotein Ab-associated disease**
R. Cortese (London, UK)
- P545 Simulation of diffusion weighted MR in the neuronal tissue with intact myelin and in the presence of myelin debris**
E. Pagani (Milan, IT)

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- P546 Magnetic resonance imaging in multiple sclerosis animal models - a systematic review**
B.V. Ineichen (Stockholm, SE)
- P547 Assessing the reliability of longitudinal MRI examinations in multiple sclerosis follow-up**
W. Van Hecke (Leuven, BE)
- P548 Longitudinal cortical thinning progression differs across MS phenotypes and is clinically relevant: a multicentre study**
M. Hidalgo De La Cruz (Milan, IT)
- P549 Use of diffusion kurtosis versus volumetrics for the detection of gray matter pathology**
L.Q. Cao (New York, US)
- P550 Estimating and accounting for the effect of MRI scanner changes on longitudinal whole-brain volume change measurements**
T. Sinnecker (Basel, CH)
- P551 Relationship between Upper Cervical Cord Atrophy and focal lesions and whole-brain atrophy in Relapsing Remitting Multiple Sclerosis: 3-year follow-up from INSPIRATION-MRI**
J. Gregori (Heidelberg, DE)
- P552 An end to end automated pipeline for brain structure segmentation in multiple sclerosis patients**
S. Valverde (Girona, ES)
- P553 Linking thalamic functional disconnection with abnormal upper limb sensorimotor integration in multiple sclerosis**
C. Gianni (Rome, IT)
- P554 Real-world longitudinal brain atrophy measurements using icobrain at a single centre: a preliminary assessment**
A.-L. Nguyen (Parkville, AU)
- P555 Machine learning on brain MRI data for differential diagnosis of multiple sclerosis and neuromyelitis optica spectrum disorder**
H. Kim (Seoul, KR)
- P556 SWAN-venule: a very sensitive susceptibility-based MRI technic to detect the central vein in MS plaques**
M.I. Gaitán (Buenos Aires, AR)
- P557 Brain total sodium concentration is associated with DBSI-derived maps to predict disability in MS**
M.M. El Mendili (New York, US)
- P558 Relationships Between White Matter Lesions with the Paramagnetic Rim Sign and Quantitative Spinal Cord MRI in Radiologically Isolated Syndrome**
J. Oh (Toronto, CA)

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- P559** **Changes in brain volume in specific regions could predict worsening cognition in primary progressive multiple sclerosis**
F. Pérez-Miralles (Valencia, ES)
- P560** **Microstructural damage to the fronto-striatal circuitry may play a role in the development of resistance to fatigue-lowering medications in patients with multiple sclerosis**
M. Palotai (Boston, US)
- P561** **Relationships between enlarged perivascular spaces and clinical and radiographic outcomes in secondary progressive multiple sclerosis**
L. Wooliscroft (Portland, US)
- P562** **Structured reporting in multiple sclerosis decreases reporting time**
R. Bermel (Cleveland, US)
- P563** **Accelerated retinal nerve fibre loss in multiple sclerosis eyes with history of optic neuritis and chronic demyelination**
Y. You (Sydney, AU)
- P564** **Serum neurofilament light chain levels predict retinal outer plexiform layer thinning in early multiple sclerosis**
C. Seitz (Mainz, DE)
- P565** **Predictive value of cerebrospinal fluid biomarkers on optic coherence tomography outcomes in multiple sclerosis**
R. Capuano (Barcelona, ES)
- P566** **Damage in both the anterior and posterior visual pathway affects visual evoked potentials in multiple sclerosis**
A. Papadopoulou (Berlin, DE)
- P567** **Optical Coherence Tomography and Visual Evoked Potentials to assess functional and structural damage after Acute Optic Neuritis in Clinically Isolated Syndrome and Multiple Sclerosis**
S. Guerrieri (Milan, IT)
- P568** **Optical coherence tomography (OCT) in multiple sclerosis: Is cognitive performance associated with retinal layer thickness?**
S.J. Baetge (Düsseldorf, DE)
- P569** **Patterns of Neurodegeneration in Macula Differs in Multiple Sclerosis Subtypes: a Voxel-Based Morphometry Study with Optical Coherence Tomography**
S.-C. Huang (Milano, IT)
- P570** **An exploratory study of suicidal risk in people with Multiple Sclerosis: The Relationship with Cognitive Impairment**
M.J. Arevalo (Toronto, CA)
- P571** **Brain MRI segmentation identifies regions of interest related to Functional and Dysfunctional impulsivity in Multiple Sclerosis**
H. Joly (Nice, FR)

Scientific Programme

- P572 Cognitive reserve in MS: a protective role for cognitive dysfunction in cognitively preserved patients**
E. Lopez-Soley (Barcelona, ES)
- P573 Global and regional hippocampal volumes are preserved in neuromyelitis optica spectrum disorders and do not contribute to cognitive impairment**
L. Cacciaguerra (Milan, IT)
- P574 Better coping for better clinical outcomes: impact of coping strategies in Multiple Sclerosis**
M. Guandalini (Verona, IT)
- P575 Self-perceived and family reported cognitive deficits in Multiple Sclerosis using the Inventory of Prefrontal Symptoms and The Modified Questionnaire of Daily Life Memory Failures**
F. Garcia-Vaz (Madrid, ES)
- P576 The positive impact of psychological resilience on disability in African-American and Caucasian patients with Multiple Sclerosis**
S. Klineova (New York, US)
- P577 The big data of 'brief international cognitive assessment for multiple sclerosis' for evaluating cognitive profile from Turkey**
S. Ozakbas (Izmir, TR)
- P578 Cognitive profile of patients with familial multiple sclerosis**
Ö. Sağıcı (Izmir, TR)
- P579 Relationship between cognitive functions and cognitive reserve in people with multiple sclerosis**
Ö. Sağıcı (Izmir, TR)
- P580 Perceived stigma among multiple sclerosis patients with cognitive impairment**
A. Artemiadis (Nicosia, CY)
- P581 Intrathecal inflammatory profile predicts disease course in Multiple Sclerosis: a 4-year longitudinal study**
M. Calabrese (Verona, IT)
- P582 Elevated serum neurofilament light chain is associated with accelerated inner retinal layer thinning in multiple sclerosis**
E. Sotirchos (Baltimore, US)
- P583 Effect of alemtuzumab on serum neurofilament light chain levels in RRMS patients with or without highly active disease: comparison with SC IFNB-1a and 7-year assessment (CARE-MS I)**
J. Kuhle (Basel, CH)
- P584 Microstructural white matter tract damage measured using DTI-MRI associates with increased serum NFL levels**
M. Saraste (Turku, FI)

Scientific Programme

- P585** **Peripheral myeloid-derived suppressor cells: a new tool to predict the severity of the clinical course and tissue damage extent in multiple sclerosis**
D. Clemente (Toledo, ES)
- P586** **Combined omics analysis of cerebrospinal fluid is able to predict conversion from clinically isolated syndrome to clinically definite MS within 4 years**
F. Probert (Oxford, UK)
- P587** **Towards the clinical application of a blood-based metabolomics test in the staging of multiple sclerosis: Addressing practical and logistical considerations**
F. Probert (Oxford, UK)
- P588** **Development of a Sensitive Serum Neurofilament Light Assay on Siemens Routine Immunoassay Platforms**
T. Plavina (Cambridge, US)
- P589** **Markers of premature immunosenescence in the peripheral blood of multiple sclerosis subjects vs. healthy controls**
C. Larochelle (Montréal, CA)
- P590** **The central vein sign in MS patients with vascular comorbidities**
F. Guisset (Brussels, BE)
- P591** **Cerebrospinal fluid growth-associated protein 43 in multiple sclerosis**
S. Sandgren (Gothenburg, SE)
- P592** **CSF-NfL correlates to MRI progression in MS, a 10-year follow-up study**
A. Bhan (Stavanger, NO)
- P593** **Risk Factors in Early Multiple Sclerosis (RISEMS)**
I. Shelton (Aurora, US)
- P594** **NfL and CXCL13 reveal disease activity in clinically and radiologically stable MS**
M. Axelsson (Gothenburg, SE)
- P595** **Latent-phase stool proteomic assay of multiple sclerosis model indicates protective capacity of host-expressed protease inhibitors**
S. Tankou (New York, US)
- P596** **Circulating miR-191-5p, miR-223-3p, miR-24-3p and miR-128-3p in sera of MS patients, longitudinal study**
I. Vistbakka (Tampere, FI)
- P597** **Genome-wide transcriptome analysis of MS exosomes**
M. Mycko (Olsztyn, PL)
- P598** **Serum Neurofilaments as candidate biomarkers of natalizumab-associated PML**
F.C. Loonstra (Amsterdam, NL)

Scientific Programme

- P599 Structural and functional damage of the sensorimotor network contribute to predict disability progression and phenotype evolution in patients with multiple sclerosis: a 6.5-year follow-up study**
M. Filippi (Milan, IT)
- P600 Biomarkers of both inflammation and axonal damage are reduced by dimethyl fumarate in a prospective trial of untreated newly diagnosed MS**
T. Sejbaek (Odense, DK)
- P601 Clinical disease activity status (exacerbation versus quiescence) in subjects with relapsing-remitting multiple sclerosis is accurately classified using multivariate serum protein biomarker models**
F. Qureshi (Menlo Park, US)
- P602 Relationship of brain predicted age change disability accumulation in multiple sclerosis**
S. Bonomi (Verona, IT)
- P603 Efficacy and safety of satralizumab monotherapy for relapse prevention in neuromyelitis optica spectrum disorder (NMOSD): Results from SAKuraStar, a double-blind placebo-controlled Phase 3 clinical study**
A. Traboulsee (Vancouver, CA)
- P604 Impact of eculizumab on hospitalization rates and relapse treatment in patients with aquaporin-4 antibody-positive neuromyelitis optica spectrum disorder: findings from the phase 3 PREVENT study**
H.J. Kim (Goyang, KR)
- P605 Subgroup analyses from the Phase 3 PREVENT study in patients with aquaporin-4 antibody-positive neuromyelitis optica spectrum disorder**
S. Pittock (Rochester, US)
- P606 Therapeutic strategies for aggressive multiple sclerosis: a single center experience with alemtuzumab and autologous hematopoietic stem cells transplantation**
G. Boffa (Genova, IT)
- P607 Interrupting rituximab treatment in relapsing-remitting multiple sclerosis; No evidence of rebound disease activity**
A. Juto (Stockholm, SE)
- P608 Natalizumab usage in Denmark - report from the Danish National Multiple Sclerosis Registry**
J. Romme Christensen (Copenhagen, DK)
- P609 A Danish nationwide pharmacoepidemiological study of treatment with teriflunomide**
M. Magyari (Copenhagen, DK)
- P610 Studying the effect of cladribine on microglia survival, proliferation, activation and cytokine release**
H. Eixarch (Barcelona, ES)

Scientific Programme

- P611 Pathogenic signature of Th17 cells enhances in course of long-term natalizumab treatment- possible implications for treatment cessation?**
C. Janoschka (Münster, DE)
- P612 Impact of eculizumab on reported quality of life in patients with aquaporin-4 antibody-positive neuromyelitis optica spectrum disorder: findings from the PREVENT study**
A. Berthele (Munich, DE)
- P613 High-dimensional characterisation of dimethyl fumarate-induced immune phenotype**
M. Diebold (Basel, CH)
- P614 Natalizumab promotes activation and pro-inflammatory differentiation of peripheral B cells**
L. Hussein (Göttingen, DE)
- P615 Ozanimod efficacy in RMS by baseline thalamic volume quartile: a post hoc exploratory analysis of phase 3 RADIANCE**
D. Jeffery (Mooreville, US)
- P616 Immunological change after MSC infusion in MS patients - results from a Phase 2 trial of autologous mesenchymal cell therapy in MS (STREAMS)**
R. Ali (London, UK)
- P617 Long-term effectiveness in patients previously enrolled in the Cladribine Tablets pivotal trials: a Real-World Evidence analysis using data from the Italian Multiple Sclerosis Registry (CLARINET-MS)**
F. Patti (Catania, IT)
- P618 Efficacy and safety of fingolimod in patients with increased risk of disease progression switching from other DMTs in daily clinical routine: Interim analysis from PANGAEA 2.0**
U. Schulze-Toppoff (Nuremberg, DE)
- P619 Safety data from the non-interventional, prospective study CLEVER (CLadribine Tablets - EValuation of thERapy satisfaction) and CLADQoL (CLADribine Tablets - evaluation of Quality of Life) recorded until February 20, 2019**
I.-K. Penner (Düsseldorf, DE)
- P620 Non-interventional, prospective study CLEVER (CLadribine Tablets - EValuation of thERapy satisfaction), data extraction March 2019**
T. Ziemssen (Dresden, DE)
- P621 Dual signaling of monomethyl fumarate through the hydroxycarboxylic acid receptor-2 in different cells: possible implications for gastro-intestinal side effects**
A. Uccelli (Genoa, IT)
- P622 Differentiated Pharmacokinetic/Pharmacodynamic (PK/PD) Profiles for Siponimod (BAF312) Versus Fingolimod**
M. Bigaud (Basel, CH)

Scientific Programme

- P623 Effects of 2-chlorodeoxyadenosine (Cladribine) on Microglial cells and Astrocytes**
J. Correale (Buenos Aires, AR)
- P624 The CLARITY Study: Efficacy Outcomes Among Patients Who Received Disease-Modifying Therapies Prior to Treatment with Cladribine Tablets**
P. Vermersch (Lille, FR)
- P625 Concomitant Plasma Exchange and High-Dose Glucocorticosteroid Treatment Do Not Improve Clinical Outcomes Over Plasma Exchange Alone in the Treatment of Acute MS Relapses**
L. Tardo (Dallas, US)
- P626 Differential effects of immunomodulating drugs on peripheral blood B cell subsets: a cross sectional study in multiple sclerosis patients treated with interferon beta, glatiramer acetate, dimethyl fumarate, fingolimod or natalizumab**
C.L. Kemmerer (Tübingen, DE)
- P627 Teriflunomide inhibits activation and proliferation of B-cells in patients with relapsing remitting multiple sclerosis (RRMS)**
S. Markovic-Plese (Chapel Hill, US)
- P628 Time to 1st relapse in MS patients treated with dimethyl fumarate or fingolimod: A retrospective European study**
L. Diem (Bern, CH)
- P629 A case of severe polyarthritis after a treatment with alemtuzumab: when disability is not only neurological**
A. Abdelhak (Tübingen, DE)
- P630 Autoimmune encephalitis with CSF anti-GluR3 antibodies after alemtuzumab treatment: a case report**
G. Pellicciari (Roma, IT)
- P631 Differences in peripheral blood lymphocyte subsets from patients with multiple sclerosis treated with fingolimod or dimethyl fumarate**
Y. Shimizu (Tokyo, JP)
- P632 Alemtuzumab for patients with relapsing multiple sclerosis after Natalizumab**
J. Peña Martínez (Avilés, ES)
- P633 Risk reduction of EDSS progression in patients with relapsing multiple sclerosis treated with cladribine tablets in the CLARITY study: post-hoc analysis including patients who went on to receive rescue therapy**
A.A. Miravalle (Fort Collins, US)
- P634 Switching natalizumab to fingolimod - real life data from Austria**
M. Guger (Linz, AT)
- P635 The DHODH Inhibitor IMU-838/Vidofludimus Calcium Shows a Superior Compound Profile as Compared to the Approved DHODH Inhibitor Teriflunomide/Aubagio**
A. Muehler (Planegg-Martinsried, DE)

Scientific Programme

- P636** **Neuroprotective effects of 4-aminopyridine in multiple sclerosis**
V. Koska (Düsseldorf, DE)
- P637** **Effects of fingolimod and natalizumab on slowly expanding lesion occurrence over two years of treatment in relapsing-remitting multiple sclerosis**
P. Preziosa (Milan, IT)
- P638** **High dose pharmaceutical grade biotin, MD1003, treatment preserves motor performance in a model of progressive neurodegeneration**
S. Nessler (Göttingen, DE)
- P639** **Blockage of BMP-2 Signaling by Neutralizing Ab or Small Molecule Induces Remyelination and Oligodendrocytes Differentiation in Cuprizone Model of Demyelination**
M. Ben Hamou (Tel Aviv, IL)
- P640** **A phase II futility trial of Hydroxychloroquine in primary progressive MS. Results of the first stage of the trial**
M. Koch (Calgary, CA)
- P641** **Cannabidiol and dimethyl fumarate share a common mechanism of action in the activation of transcription factor Nrf2**
A. Sánchez Sanz (Madrid, ES)
- P642** **Model-based Identification of Flat Dosing Regimen for Opicinumab AFFINITY Trial**
D. MacCannell (Cambridge, US)
- P643** **Dimethyl fumarate decreases levels of neurodegenerative marker glial fibrillary acidic protein in relapsing multiple sclerosis**
J. Møllergård (Linköping, SE)
- P644** **Rate of cardiovascular disease among Swedish multiple sclerosis patients treated with rituximab, natalizumab, fingolimod, and dimethyl fumarate: a nationwide cohort study**
T. Frisell (Stockholm, SE)
- P645** **Alemtuzumab maintains efficacy on clinical and MRI disease activity outcomes, including slowing of brain volume loss, over 9 years in RRMS patients: CARE-MS II follow-up (TOPAZ study)**
G. Comi (Milan, IT)
- P646** **A Swedish Nationwide Study of the Long-Term Effectiveness and Safety of Teriflunomid based on data from the Swedish 'Immunomodulation and Multiple Sclerosis Epidemiology' Study (IMSE 4)**
L. Forsberg (Stockholm, SE)
- P647** **Clinical Effectiveness of Dimethyl Fumarate with Focus on Patients Treated at least 36 Months - A Swedish Nationwide Study of the Long-Term Effectiveness and Safety of Dimethyl Fumarate (IMSE 5)**
L. Forsberg (Stockholm, SE)
- P648** **Safety of ocrelizumab in multiple sclerosis: updated analysis in patients with relapsing and primary progressive multiple sclerosis**
S. Hauser (San Francisco, US)

Scientific Programme

- P649 Safety and Effectiveness of Delayed-Release Dimethyl Fumarate Maintained Over 4-years in Multiple Sclerosis Patients Treated in Routine Medical Practice**
K. Pandey (Hackensack, US)
- P650 An analysis of the relationship between cladribine dose and risk of malignancies in patients with multiple sclerosis**
S. Cook (Newark, US)
- P651 Long-term efficacy and safety of alemtuzumab in patients with RRMS: 12-year follow-up of the CAMMS223 study**
O. Fernández (Málaga, ES)
- P652 The Burden of Treatment Monitoring for Patients and Physicians in Multiple Sclerosis (MS) in Europe and The United States**
J. White (London, UK)
- P653 Pharmacovigilance of urinary tract infections in Alemtuzumab cohort**
K. Allen-Philbey (London, UK)
- P654 Should I stay or should I go (on). Disease modifying therapies in patients with no evidence of disease activity for more than five years**
T. Monschein (Vienna, AT)
- P655 The association between an active disease course and later risk of losing income from salaries and risk of early disability pension for patients with multiple sclerosis**
T.A. Chalmer (Copenhagen, DK)
- P656 Twenty-Seven Years of Continuous Treatment of Multiple Sclerosis With Glatiramer Acetate: Long-term Efficacy Results of the US Open-Label Extension Study**
C. Ford (Albuquerque, US)
- P657 Real-world performance of oral disease-modifying therapies: A longitudinal study comparing fingolimod, teriflunomide and dimethyl fumarate in Chile**
E. Ciampi (Santiago, CL)
- P658 No changes in anti-JCV antibody status after Natalizumab discontinuation in a large population of Multiple Sclerosis patients**
E. Sgarlata (Rome, IT)
- P659 Long-term efficacy including clinical NEDA and safety of three-times-weekly dosing regimen of glatiramer acetate: 7-year results of the Glatiramer Acetate Low-Frequency Administration (GALA) open-label extension study**
P. Rieckmann (Loipl, DE)
- P660 Adherence and Persistence Among MS Patients Treated with First-Line Disease Modifying Therapies in Finland**
M. Soilu-Hänninen (Turku, FI)
- P661 Real-world experience with Cladribine in the MSBase Registry**
H. Butzkueven (Melbourne, AU)

Scientific Programme

- P662 A swedish post-market surveillance study of the long-term effectiveness and safety of alemtuzumab (IMSE 3) for patients treated at least 24 months**
A. Fält (Stockholm, SE)
- P663 Real-world effectiveness of fingolimod in Polish group of patients with relapsing-remitting multiple sclerosis**
A. Walczak (Lodz, PL)
- P664 Long term outcome of NMOSD and efficacy of long-term immunosuppression - A single center study from Southern India**
S.R. Komandla (Hyderabad, IN)
- P665 Very early detection of progressive multifocal leukoencephalopathy: should we perform cerebrospinal fluid analysis before switching from natalizumab to ocrelizumab?**
I. Meinl (Munich, DE)
- P666 Evaluation of anti-JC virus index values in multiple sclerosis patients on natalizumab extended interval dosing and standard interval dosing: an analysis of the TOUCH (R) Prescribing Program database**
J. Foley (Salt Lake City, US)
- P667 Disease reactivation following fingolimod cessation**
C.B. Malpas (Melbourne, AU)
- P668 Traffic Lights Intervention reduces Therapeutic Inertia: A Randomized Controlled trial in Multiple Sclerosis care**
G. Saposnik (Toronto, CA)
- P669 Effect of HLA class II alleles on JCV infection in Japanese patients with multiple sclerosis**
M. Watanabe (Fukuoka, JP)
- P670 Switching from Natalizumab to Anti-CD20 Monoclonal Antibodies: Optimal Timing and Safety Analysis**
S. Levin (New York, US)
- P671 Accelerated hepatitis B vaccination regimen resulted in poor sero-protection rate in MS patients**
A. Wundes (Seattle, US)
- P672 Lymphopenia is not associated with efficacy and risk of adverse events in a real-life MS population treated with fingolimod and dimethyl fumarate**
N. Bruschi (Genova, IT)
- P673 Low risk of natalizumab-associated progressive multifocal leukoencephalopathy in patients who were anti-JC virus antibody negative at baseline**
L. Mason (Cambridge, US)
- P674 Incidence of relapses in patients with purified high dose biotin-treated progressive multiple sclerosis (IPBio-SeP study): a second intermediate analysis of a French, multicenter study**
X. Moisset (Clermont-Ferrand, FR)

Scientific Programme

- P675 Fatal outcome from thrombocytopenia purpura associated with alemtuzumab treatment**
K. Edwards (Latham, US)
- P676 Exploration of factors which influence treatment decisions of patients with Multiple Sclerosis**
B. Bardsley (Heidelberg, AU)
- P677 Severe multiple sclerosis relapse with tumefactive lesion while transitioning between fingolimod and rituximab**
K. Rimmer (New York, US)
- P678 Comparison of In vivo Toxicity and Anti-glatiramer acetate IgG Antibody Titers in Rats Treated with Glatiramer Acetate (Copaxone) and Follow-on Glatiramer Acetate (FOGA) Products**
A. Konya (Debrecen, HU)
- P679 Temporary left ventricular dysfunction due to fingolimod treatment**
G. Tekgol (Eskişehir, TR)
- P680 Predictors of response to high-efficacy therapies in relapsing-remitting multiple sclerosis**
L. Midaglia (Barcelona, ES)
- P681 High-throughput immunophenotyping and subsequent bulk data analysis can reveal prognostic markers in alemtuzumab treatment of MS patients**
T. Ruck (Muenster, DE)
- P682 Evaluation of spinal cord atrophy in different MS subtypes using icospine**
W. Van Hecke (Leuven, BE)
- P683 A mass cytometry study of natalizumab treated MS patients**
G.H. Bringeland (Bergen, NO)
- P684 Clinical characteristics predicting relapses following disease modifying therapies discontinuation in Multiple Sclerosis: a monocentric cohort study**
M. Pasca (Florence, IT)
- P685 Short term disease activity after switching from natalizumab to fingolimod does not predict long term fingolimod efficacy - a retrospective study**
C. Coclitu (Grenoble, FR)
- P686 Effects of Ocrelizumab treatment in peripheral blood leukocyte subsets of Primary Progressive Multiple Sclerosis patients**
J.I. Fernandez Velasco (Madrid, ES)
- P687 Peg-Interferon beta 1a elicits a sustained and long lasting overexpression of interferon related genes: a whole transcriptome sequencing analysis**
A. Bertolotto (Orbassano, IT)
- P688 Machine learning models using multi-dimensional digital data and PROs predict driving difficulties and falls in people with MS**
M. Gudesblatt (Patchogue, US)

Scientific Programme

- P689 Title: miRNA profiling in Teriflunomide treated multiple sclerosis (MS) patients**
A. Paul (Boston, US)
- P690 Efficacy and safety of ocrelizumab in patients with relapsing-remitting multiple sclerosis with a suboptimal response to previous disease-modifying therapies (1-year interim results)**
P. Vermersch (Lille, FR)
- P691 Efficacy of Transcutaneous Posterior Tibial Nerve Stimulation and Pelvic Floor Muscle Training in Female MS Patients with Overactive Bladder**
C. Polat Dunya (Istanbul, TR)
- P692 N-acetyl cysteine for fatigue in progressive multiple sclerosis: A pilot randomized double-blind placebo-controlled trial**
K.M. Krysko (San Francisco, US)
- P693 Effectiveness and safety of tetrahydrocannabinol - cannabidiol oromucosal spray in Belgian patients with multiple sclerosis spasticity: a retrospective data collection**
V. Popescu (Pelt, BE)
- P694 Determining how and when to stop a placebo-controlled study for efficacy in NMOSD: An IDMC perspective**
F. Lublin (New York, US)
- P695 The use of Registration of Interest portals to streamline MS Trials Recruitment**
S. Alexander (London, UK)
- P696 Risk factors of leaving employment due to multiple sclerosis and changes in risk over the past decades: survival analysis with competing risks**
J. Chen (Hobart, AU)
- P697 PATIENTS WITH NEUROMYELITIS OPTICA SPECTRUM DISORDER TREATED WITH TOCILIZUMAB FOR 2 YEARS**
E. Carreón Guarnizo (Murcia, ES)
- P698 Cladribine is not mutagenic to mitochondrial DNA and RNA in leukemic cell lines**
E. Järvinen (Espoo, FI)
- P699 An Oral Gavage Model for Cuprizone - Induced Brain Demyelination: Improved Repeatability Along With Robust and Specific Phenotype**
J. Toivanen (Kuopio, FI)
- P700 Assessing pharmacists' preferences towards efficacy attributes of multiple sclerosis disease-modifying therapies**
J. Maurino (Madrid, ES)
- P701 User-centered development of an integrated disease management portal for patients with multiple sclerosis: results of patient & physician surveys**
M. Wunderlich (Dresden, DE)

Scientific Programme

- P702 New Master's Program: Multiple Sclerosis Management**
I. Voigt (Dresden, DE)
- P703 Discontinuation of disease-modifying therapy and its clinical impact in MS patients over 60 years**
F. Ladeira (Lisbon, PT)
- P704 Telemedicine reaches MS patients living with disabilities: At-home telerehabilitation with remotely-supervised transcranial direct current stimulation (RS-tDCS)**
L. Charvet (New York, US)
- P705 Neuro rehabilitation effectiveness based on virtual reality and tele rehabilitation in patients with multiple sclerosis in Argentina. 'Reavitelem' study**
F.J. Caceres (Buenos aires, AR)
- P706 Walk ratio as a window to the cerebellum in multiple sclerosis: a structural MRI study**
A. Kalron (Tel-Aviv, IL)
- P707 Different network functional connectivity characteristics of responders and non-responders to attention training in MS**
S.E. Prouskas (Amsterdam, NL)
- P708 Mixed methods study of the upper extremity: forgotten and not prioritized in MS rehabilitation**
K. Wadden (St. John's, CA)
- P709 The use of fNIRS to characterize cognitive and motor processing in early stage patients with multiple sclerosis**
R.B. Thomaz (São Paulo, BR)
- P710 POSITIVE EFFECTS OF EXERCISE ON COGNITION ARE ENHANCED BY THE TRANSCRANIAL DIRECT CURRENT STIMULATION**
G. Coghe (Cagliari, IT)
- P711 Mapping the MRI substrates of hand motor impairment: focus on motor structural networks**
C. Cordani (Milan, IT)
- P712 The effects of aerobic exercise on sleep quality measures and sleep-related biomarkers in individuals with Multiple Sclerosis: a pilot randomised controlled trial**
A. Al-Sharman (Irbid, JO)
- P713 The effects of maximal aerobic exercise on serum neurotrophins and inflammatory cytokines in progressive Multiple Sclerosis**
A.J. Devasahayam (St.John's, CA)

Scientific Programme

18:15 - 19:15		<p>Satellite Symposium, Hall B</p> <p>Satellite Symposium 3: Harnessing the digital health revolution</p> <p>Supported by Roche</p> <p>Chairs J. Oh (Toronto, CA)</p>
18:15 - 18:35	126	<p>Digital transformations in healthcare and research A. Atreja (New York City, US)</p>
18:35 - 18:55	127	<p>Navigating complexity to aid practical decisions H. Butzkueven (Melbourne, AU)</p>
18:55 - 19:15	128	<p>Integrating digital tools into the MS clinic J. Oh (Toronto, CA)</p>
18:15 - 19:15		<p>Satellite Symposium, Hall D</p> <p>Satellite Symposium 4: Relapses in neuromyelitis optica spectrum disorder: why do they matter?</p> <p>Supported by Alexion Pharmaceuticals Inc</p> <p>Chairs F. Paul (Berlin, DE)</p>
18:15 - 18:20	122	<p>Welcome and introductions F. Paul (Berlin, DE)</p>
18:20 - 18:35	123	<p>Understanding the burden of NMOSD relapse J. Lycke (Gothenburg, SE)</p>
18:35 - 19:00	124	<p>The pathophysiology of NMOSD and its implications H. Wiendl (Münster, DE) S. Pittock (Rochester, US)</p>
19:00 - 19:15	125	<p>Panel discussion, questions and close F. Paul (Berlin, DE) J. Lycke (Gothenburg, SE) H. Wiendl (Münster, DE) S. Pittock (Rochester, US)</p>

Scientific Programme

Thursday, 12 September 2019

07:30 - 08:30		<p>Satellite Symposium, Hall C</p> <p>Satellite Symposium 5: The road not (yet) taken: targeting new pathways of MS pathophysiology</p> <p>Supported by Sanofi Genzyme</p> <p>Chairs J. Hillert (Stockholm, SE)</p>
07:30 - 07:35	129	<p>Welcome and introduction J. Hillert (Stockholm, SE)</p>
07:35 - 07:45	131	<p>Mapping “MS”: neurodegeneration throughout the disease course B. Trapp (Cleveland, US)</p>
07:45 - 08:05	130	<p>The road we’re on: current therapeutic targets J. Hillert (Stockholm, SE)</p>
08:05 - 08:25	132	<p>The road ahead: emerging targets and disease pathways in MS A. Bar-Or (Philadelphia, US)</p>
08:25 - 08:30	132a	<p>Closing remarks J. Hillert (Stockholm, SE)</p>
08:00 - 09:30		<p>Educational Session, Hall E</p> <p>Educational Session 15: How do our treatments impact the immune system?</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs R. Liblau (Toulouse, FR) L. Klotz (Münster, DE)</p>
08:00 - 08:30	133	<p>Impact of first-line MS treatments on the immune system L. Klotz (Münster, DE)</p>
08:30 - 09:00	134	<p>Migration-targeting therapies in MS: impact on immune responses R. Liblau (Toulouse, FR)</p>
09:00 - 09:30	135	<p>Cell-depleting strategies in MS: impact on immune responses A. Bar-Or (Philadelphia, US)</p>

Scientific Programme

08:00 - 09:30		<p>Educational Session, Hall F</p> <p>Educational Session 16 (IMSCOGS): Cognitive dysfunction in MS</p> <p>Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs R.H. Benedict (Buffalo, US) M.P. Amato (Florence, IT)</p>
08:00 - 08:30	137	<p>How to diagnose and monitor in clinical practice R.H. Benedict (Buffalo, US)</p>
08:30 - 09:00	138	<p>How to manage: recent developments J. DeLuca (West Orange, US)</p>
09:00 - 09:30	136	<p>Epidemiology and risk factors: an update M.P. Amato (Florence, IT)</p>
08:30 - 09:30		<p>Free Communications, Hall A</p> <p>Free Communication 1: New treatment options in NMO</p> <p>Chairs J. Palace (Oxford, UK) S. Khoury (Beirut, LB)</p>
08:30 - 08:42	139	<p>The N-MOMentum Study--A Randomised, Placebo-Controlled, Double-Blind Trial of Inebilizumab for Neuromyelitis Optica Spectrum Disorder: Randomised Controlled Period and Open-label Extension Results B.A. Cree (San Francisco, US)</p>
08:42 - 08:54	140	<p>Tocilizumab versus azathioprine in highly relapsing neuromyelitis optica spectrum disorders (TANGO): a head-to-head comparative study F.-D. Shi (Tianjin, CN)</p>
08:54 - 09:06	141	<p>Efficacy of satralizumab as monotherapy in pre-specified subgroups of SAKuraStar, a double-blind placebo-controlled Phase 3 clinical study in patients with neuromyelitis optica spectrum disorder (NMOSD) J.L. Bennett (Aurora, US)</p>
09:06 - 09:18	142	<p>Long-term safety and effectiveness of eculizumab in neuromyelitis optica spectrum disorder D.M. Wingerchuk (Scottsdale, US)</p>
09:18 - 09:30	143	<p>Autologous Hematopoietic Stem Cell Transplant in Patients with Severe Refractory Neuromyelitis Optica Spectrum Disease: The Ottawa Experience J. Brooks (Ottawa, CA)</p>

Scientific Programme

08:30 - 09:30

Free Communications, Hall B

Free Communication 2: Comorbidities

Chairs

A.J. Thompson (London, UK)
E. Gulowsen Celius (Oslo, NO)

08:30 - 08:42 144

The Survival of Patients with Multiple Sclerosis in Turkey

M. Kürtüncü (Istanbul, TR)

08:42 - 08:54 145

A large exploratory case-control study on the multiple sclerosis prodrome

A. Hapfelmeier (Munich, DE)

08:54 - 09:06 146

Vascular disease in Multiple Sclerosis: a whole body approach

R. Geraldes (Oxford, UK)

09:06 - 09:18 147

Obesity is not associated with MS in a socially and ethnically diverse population

R. Dobson (London, UK)

09:18 - 09:30 148

Cardiovascular disease in patients with multiple sclerosis: a nationwide cohort study in Sweden

F. Piehl (Stockholm, SE)

08:30 - 09:30

Free Communications, Hall C

Free Communication 3: Pathology, pathogenesis and biomarkers

Chairs

A. Achiron (Tel Aviv, IL)
C. Lebrun (Nice, FR)

08:30 - 08:42 152

Blood neurofilament light levels are lowered to a healthy donor range in patients with RMS and PPMS following ocrelizumab treatment

A. Bar-Or (Philadelphia, US)

08:42 - 08:54 149

Gut microbiota-reactive IgA plasma cells traffic to the CNS in multiple sclerosis

A.-K. Pröbstel (San Francisco, US)

08:54 - 09:06 150

Iron rim lesions in Multiple Sclerosis at 7 Tesla Magnetic Resonance Imaging: a 7 year prospective longitudinal study

A. Dal-Bianco (Vienna, AT)

09:06 - 09:18 151

Paramagnetic phase rims and serum neurofilaments in relapsing-remitting and progressive multiple sclerosis patients: a combined laboratory-imaging marker of chronic inflammation

P. Maggi (Lausanne, CH)

09:18 - 09:30 153

Elevated body mass index is associated with accelerated ganglion cell + inner plexiform layer atrophy in multiple sclerosis

A.G. Filippatou (Baltimore, US)

Scientific Programme

		Scientific Session, Hall A
10:00 - 11:30		Scientific Session 5: DMT in progressive MS
		Chairs
		R.J. Fox (Cleveland, US) B. Bielekova (Bethesda, US)
10:00 - 10:20	154	DMTs in progressive MS 2019 - what remains to be achieved X. Montalban (Toronto, CA)
10:20 - 10:40	155	How to design RCTs for SPMS J. Chataway (London, UK)
		Platform presentations of related original papers
10:40 - 10:52	156	Defining the risk factors for the conversion to secondary progressive multiple sclerosis: a retrospective cohort study of the Italian MS register P. Iaffaldano (Bari, IT)
10:52 - 11:04	157	Indications of neuroprotective effects in progressive multiple sclerosis following autologous mesenchymal stem cells (MSC) transplantation: report of a randomised phase IIb double blind trial D. Karussis (Jerusalem, IS)
11:04 - 11:16	158	Siponimod delays the time to wheelchair in patients with SPMS: results from the EXPAND study P. Vermersch (Lille, FR)
11:16 - 11:28	159	Sustained reduction in confirmed disability progression in patients with primary progressive multiple sclerosis treated with ocrelizumab in the open-label extension period of the Phase III ORATORIO trial: 6.5-study year follow-up data J.S. Wolinsky (Houston, US)
		Scientific Session, Hall B
10:00 - 11:30		Scientific Session 6: Genes and progression/course
		Chairs
		S. Sawcer (Cambridge, UK) L. Barcellos (Berkeley, US)
10:00 - 10:20	160	In search of genetic regulation of progression and severity of MS I. Kockum (Stockholm, SE)
10:20 - 10:40	161	HLA variation and MS L. Fugger (Oxford, UK)
		Platform presentations of related original papers
10:40 - 10:52	162	Post-mortem multiple sclerosis lesion pathology is influenced by single nucleotide polymorphisms N.L. Fransen (Amsterdam, NL)

Scientific Programme

10:52 - 11:04	163	RNA-sequencing of leukocortical lesions from multiple sclerosis patients reveals little overlap in gene expression between white and grey matter demyelination T.A. van Wageningen (Amsterdam, NL)
11:04 - 11:16	164	Utilizing epigenetics to understand mechanisms underlying primary progressive multiple sclerosis M. Pahlevan Kakhki (Stockholm, SE)
11:16 - 11:28	165	Influence of ultraviolet radiation and diminished-function melanocortin 1 receptor variants on multiple sclerosis disease severity in two large multicenter cohort studies P. Ostkamp (Münster, DE)
Scientific Session, Hall C		
10:00 - 11:30		Scientific Session 7: How to achieve a structured assessment and quality assurance in MS care Chairs K. Fink (Stockholm, SE) P. Matthews (London, UK)
10:00 - 10:20	166	Patient monitoring by wearable devices integrated in MS care T. Chitnis (Boston, US)
10:20 - 10:40	167	To design, implement and sustain big data collection in MS H. Butzkueven (Melbourne, AU)
Platform presentations of related original papers		
10:40 - 10:52	168	Functional and structural visual pathway assessment in CIS patients A. Vidal-Jordana (Barcelona, ES)
10:52 - 11:04	169	The progressive multiple sclerosis score: a prognostic assistant tool in multiple sclerosis disease A.I. Pisani (Verona, IT)
11:04 - 11:16	170	The relationship of change in neuro-QoL to change in neuroperformance tests and MRI M. McGinley (Cleveland, US)
11:16 - 11:28	171	Introducing machine learning for full MS patient trajectories improves predictions for disability score progression L. Peeters (Diepenbeek, BE)

Scientific Programme

10:00 - 11:30		<p>Scientific Session, Hall D</p> <p>Scientific Session RIMS 1: How can rehabilitation influence the progression of MS?</p> <p>Chairs S. Johansson (Stockholm, SE) J. Freeman (Plymouth, UK)</p>
10:00 - 10:20	172	<p>Exercise therapy in MS - a disease modifying role? U. Dalgas (Aarhus, DK)</p>
10:20 - 10:40	173	<p>Coping strategies when living with MS progression L.B. Strober (East Hanover, US)</p> <p>Platform presentations of related original papers</p>
10:40 - 10:52	174	<p>Multiple sessions of transcranial direct current stimulation (tDCS) combined with aerobic physical activity improves walking speed G. Piloni (Cagliari, IT)</p>
10:52 - 11:04	175	<p>Virtual Reality(VR)-based cognitive rehabilitation: cognitive games are complementary to physical training for an optimum rehabilitation strategy in patients with multiple sclerosis (MS) S.-M. Khaligh-Razavi (London, UK)</p>
11:04 - 11:16	176	<p>Effects of PR-fampridine on gait pattern and patient-reported outcomes: a cross-over, randomized, placebo-controlled trial M. Valet (Bruxelles, BE)</p>
11:16 - 11:28	177	<p>Detection of subtle gait disturbance and future fall risk in early multiple sclerosis V. Leavitt (New York, US)</p>
10:00 - 11:30		<p>Educational Session, Hall E</p> <p>Educational Session 17: Pharmacovigilance and multiple sclerosis in the post-marketing setting: opportunity and lessons learned</p> <p>Level: Advanced (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs H. Tremlett (Vancouver, CA) M. Magyari (Copenhagen, DK)</p>
10:00 - 10:30	178	<p>Using linked health administrative and clinical data to investigate drug safety in MS H. Tremlett (Vancouver, CA)</p>
10:30 - 11:00	179	<p>Using registry data to investigate drug safety in MS M. Magyari (Copenhagen, DK)</p>

Scientific Programme

11:00 - 11:30	180	<p>Evolution of biological agents: how established drugs can become less safe D. Hunt (Edinburgh, UK)</p>
10:00 - 11:30		<p>Educational Session, Hall F</p> <p>Educational Session 18: Antibodies and complement in MS spectrum disorders</p> <p>Level: Intermediate (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)</p> <p>Chairs J.L. Bennett (Aurora, US) J. Lünemann (Münster, CH)</p>
10:00 - 10:30	181	<p>Antibody- and complement-mediated effector functions J. Lünemann (Münster, CH)</p>
10:30 - 11:00	182	<p>Antibody-mediated pathogenesis in central and peripheral neuroinflammatory disorders J.L. Bennett (Aurora, US)</p>
11:00 - 11:30	183	<p>Therapeutic complement inhibition in neuroinflammatory diseases R. Mantegazza (Milan, IT)</p>
10:00 - 11:00		<p>Meet the Expert, Hall G</p> <p>Meet the Expert 1 - NMO / MOG</p> <p>Meet the Expert Sessions are the ideal opportunity to meet with some of the biggest names in the field of MS in an interactive setting driven by audience participation. The experts will provide answers to cases and challenging questions on four different topics.</p> <p>Chairs J. de Seze (Strasbourg, FR) H.J. Kim (Goyang, KR)</p>
11:45 - 12:30		<p>Hot Topic, Hall A</p> <p>Hot Topic 6: B-cells in the pathogenesis of MS</p> <p>Chairs A. Svenningsson (Stockholm, SE) R. Magliozzi (Verona, IT)</p>
11:45 - 12:00	184	<p>Rationale of B-cell therapy in MS D. Baker (London, UK)</p>

Scientific Programme

12:00 - 12:15	185	Rituximab is a reasonable alternative in MS treatment F. Piehl (Stockholm, SE)
12:15 - 12:30	186	Rituximab is not a reasonable alternative in MS treatment M.T. Wallin (Washington, US)
11:45 - 12:30		Hot Topic, Hall B Hot Topic 7: Symptomatic treatment Chairs A.-M. Landtblom (Uppsala, SE) R. Papais-Alvarenga (Rio de Janeiro, BR)
11:45 - 12:00	187	Main challenges in symptomatic MS treatment E. Maillart (Paris, FR)
12:00 - 12:15	188	Neuromodulation: a potential approach to management of symptoms in MS L. Leocani (Milan, IT)
12:15 - 12:30	189	Symptomatic pharmacotherapy and patient education strategies in progressive MS - an inventory J. Sastre-Garriga (Barcelona, ES)
11:45 - 12:30		Hot Topic, Hall C Hot Topic 8: Neuromyelitis optica spectrum disorders Chairs R. Marignier (Lyon, FR) A. Bar-Or (Philadelphia, US)
11:45 - 12:00	190	New emerging treatments in NMOSD B. Weinshenker (Rochester, US)
12:00 - 12:15	191	The spectrum of demyelinating diseases in children B. Banwell (Philadelphia, US)
12:15 - 12:30	192	Pathogenesis of human antibodies against MOG E. Meinl (Martinsried, DE)
11:45 - 12:30		Hot Topic, Hall D Hot Topic 9: Patients' voice to develop MS care: MS PROMs Chairs J. Cohen (Cleveland, US) P.F. Zaratini (Genoa, IT)

Scientific Programme

11:45 - 12:00	193	20 years of MSIS-29 - importance of an MS specific QoL scale J. Hobart (Plymouth, UK)
12:00 - 12:15	194	PROMS: supporting patient-centred care M. Finlayson (Kingston, CA)
12:15 - 12:30	195	PROMs in standardized MS care A. Solari (Milan, IT)

11:45 - 12:45		Meet the Expert, Hall G Meet the Expert 2 - Differential diagnosis Meet the Expert Sessions are the ideal opportunity to meet with some of the biggest names in the field of MS in an interactive setting driven by audience participation. The experts will provide answers to cases and challenging questions on four different topics. Chairs B. Stankoff (Paris, FR) M. Tintoré (Barcelona, ES)
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11:45 - 12:45		Educational Session, Meeting Room T3 Case-based Educational Session 19: When to stop treatment? Chairs G. Edan (Rennes, FR) E. Le Page (Rennes, FR)
11:45 - 12:15	196	Case #1: when to stop in relapsing remitting multiple sclerosis (RRMS) patient E. Le Page (Rennes, FR)
12:15 - 12:45	197	Case #2: when to stop in stop in secondary progressive multiple sclerosis (SPMS) patient G. Edan (Rennes, FR)

13:00 - 14:00		Satellite Symposium, Hall A Satellite Symposium 6: MS: time to shift our focus Supported by Roche Chairs F. Piehl (Stockholm, SE)
13:00 - 13:20	198	Understanding MS disease progression J.S. Wolinsky (Houston, US)

Scientific Programme

13:20 - 13:40	199	The changing treatment paradigm F. Piehl (Stockholm, SE)
13:40 - 14:00	200	Preserving patient function R. Bermel (Cleveland, US)
13:00 - 14:00		Satellite Symposium, Hall B Satellite Symposium 7: Challenging our understanding of the MS spectrum: an expert panel discussion Supported by Novartis Chairs S. Fredrikson (Stockholm, SE)
13:00 - 13:05	201	Chair's opening and welcome S. Fredrikson (Stockholm, SE)
13:05 - 13:20	202	A perspective change: reframing progression in MS E. Havrdová (Prague, CZ)
13:20 - 13:35	203	"Looking beyond the obvious: unmasking progression early in the disease" B.A. Cree (San Francisco, US)
13:35 - 13:50	204	"The full portrait: individualising care in response to disease progression" G. Giovannoni (London, UK)
13:50 - 13:55	205	Q&A E. Havrdová (Prague, CZ) B.A. Cree (San Francisco, US) G. Giovannoni (London, UK) S. Fredrikson (Stockholm, SE)
13:55 - 14:00	206	Closing remarks S. Fredrikson (Stockholm, SE)
14:15 - 15:45		Scientific Session, Hall A Scientific Session 8: Pathological correlates of progression in MS Chairs L. Bø (Bergen, NO) C. Stadelmann (Göttingen, DE)
14:15 - 14:35	207	Multiple sclerosis pathogenesis: what are the missing pieces? W. Brück (Göttingen, DE)

Scientific Programme

14:35 - 14:55	208	Potential biological mechanisms behind MS progression J. Van Horssen (Amsterdam, NL) Platform presentations of related original papers
14:55 - 15:07	209	Long-term follow-up on clinical, radiographic and cognitive outcomes in pathologically confirmed CNS inflammatory demyelinating disease A. Kalinowska-Lyszczarz (Rochester, US)
15:07 - 15:19	210	Inflammatory lesion activity in chronic progressive MS is related to the accumulation and infiltration of tissue resident memory T cells N.L. Fransen (Amsterdam, NL)
15:19 - 15:31	211	Molecular signatures of different lesions types in the white matter of SPMS M.L. Elkjaer (Odense C, DK)
15:31 - 15:43	212	High levels of perivascular inflammation and active white matter lesions at time of death are associated with rapidly progressive multiple sclerosis D. Marastoni (London, UK)
Scientific Session, Hall B		
14:15 - 15:45		Scientific Session 9: Beyond EDSS - towards a comprehensive assessment of MS course Chairs S. Fredrikson (Stockholm, SE) A. Langer-Gould (Pasadena, US)
14:15 - 14:35	213	Cognitive assessment in MS - rationale and tools D. Langdon (London, UK)
14:35 - 14:55	214	Neuro-QoL in MS - tomorrow's standard outcome? D. Miller (Cleveland, US) Platform presentations of related original papers
14:55 - 15:07	215	Multiple sclerosis performance test (MSPT): a demographically stratified normative database (N = 517) of healthy subjects ages 15-89 to aid clinical interpretation of MS patient neuroperformance M. Sokolowski (Cleveland, US)
15:07 - 15:19	216	Advancing walking measurement in multiple sclerosis clinical trials: a new patient-reported outcome measure J. Hobart (Plymouth, UK)
15:19 - 15:31	217	Remotely monitored ambulatory activity correlates with MS disability not only for ambulation but also for MRI atrophy metrics, cognition and quality of life: baseline analysis from the SPI2 clinical trial of MD1003 in progressive MS V. Block (San Francisco, US)

Scientific Programme

15:31 - 15:43	218	A multiple sclerosis disease progression measure based on rate of cumulative disability R. Ramanujam (Stockholm, SE)
14:15 - 15:45		Scientific Session, Hall C Scientific Session 10: Infections and the pathogenesis of MS Chairs A. Fogdell-Hahn (Stockholm, SE) R. Hohlfeld (Munich, DE)
14:15 - 14:35	219	A role for HHV-6 in MS is still a valid hypothesis S. Jacobson (Bethesda, US)
14:35 - 14:55	220	The role of EBV in MS immunology? C. Münz (Zurich, CH)
		Platform presentations of related original papers
14:55 - 15:07	221	MS risk loci are underrepresented in EBV induced DNA hypomethylation L. Ong (Westmead, AU)
15:07 - 15:19	222	Serological response against HHV-6A is associated with increased risk for multiple sclerosis A. Fogdell-Hahn (Stockholm, SE)
15:19 - 15:31	223	The iMSMS: a multi-city, household controlled, gut microbiome study in multiple sclerosis X. Zhou (San Francisco, US)
15:31 - 15:43	224	A large case-control study on vaccination as risk factor of multiple sclerosis C. Gasperi (Munich, DE)
14:15 - 15:45		Scientific Session, Hall D Scientific Session RIMS 2: Challenges in cognitive rehabilitation Chairs A. Solari (Milan, IT) J. Sastre-Garriga (Barcelona, ES)
14:15 - 14:35	225	Cognitive strategy training - a curse or blessing? P. Hämäläinen (Masku, FI)
14:35 - 14:55	226	Cognitive rehabilitation for attention and memory in multiple sclerosis: results of the CRAMMS trial R. das Nair (Nottingham, UK)

Scientific Programme

Platform presentations of related original papers

14:55 - 15:07	227	Memory improvement after a cognitive rehabilitation program in multiple sclerosis H. Brissart (Nancy, FR)
15:07 - 15:19	228	Cognitive rehabilitation in patients with advanced progressive multiple sclerosis: possible within limits? S.E. Prouskas (Amsterdam, NL)
15:19 - 15:31	229	Study of mental rotation in a cohort of patients with relapsing remitting multiple sclerosis: case control study M. Fratino (Roma, IT)
15:31 - 15:43	230	A novel home-based digital treatment to improve processing speed in people with multiple sclerosis: A pilot study R. Bove (San Francisco, US)

Educational Session, Hall E

14:15 - 15:45

Educational Session 20: Immunisation in MS

Level: Basic

(Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)

Chairs

S. Vukusic (Lyon, FR)
J. Correale (Buenos Aires, AR)

14:15 - 14:45	231	Vaccines and the risk of MS J. Correale (Buenos Aires, AR)
14:45 - 15:15	232	Vaccines and the risk of relapses J. Frederiksen (Copenhagen, DK)
15:15 - 15:45	233	Vaccines and DMTs S. Vukusic (Lyon, FR)

Educational Session, Hall F

14:15 - 15:45

Educational Session 21: Comprehensive appraisal of MS studies

Level: Advanced

(Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)

Chairs

M.P. Sormani (Genoa, IT)
F. Deisenhammer (Innsbruck, AT)

Scientific Programme

14:15 - 14:45	234	How to assess and summarize study E. Hernández Martínez-Lapiscina (Barcelona, ES)
14:45 - 15:15	235	Data analyses, interpretation, misinterpretation, and biases M.P. Sormani (Genoa, IT)
15:15 - 15:45	236	Interpretation of analytical/deductive statistics F. Deisenhammer (Innsbruck, AT)
Meet the Expert, Hall G		
14:15 - 15:15		Meet the Expert 3 - Treatment Meet the Expert Sessions are the ideal opportunity to meet with some of the biggest names in the field of MS in an interactive setting driven by audience participation. The experts will provide answers to cases and challenging questions on four different topics. Chairs K. Selmaj (Olsztyn, PL) R. Gold (Bochum, DE)
Free Communications, Hall A		
16:15 - 17:15		Free Communication 4: Clinical aspects , neuroprotection and repair Chairs M. Tintoré (Barcelona, ES) M. Pugliatti (Ferrara, IT)
16:15 - 16:27	237	Higher efficacy therapies appear to have a disproportionately larger effect in younger patients E. Alvarez (Aurora, US)
16:27 - 16:39	238	Population-based head-to-head comparative studies of the epidemiology of neuromyelitis optica spectrum disorder (NMOSD) in Europe V. Papp (Aabyhøj, DK)
16:39 - 16:51	239	A large international aquaporin-4 antibody data set: combines individual factors to predict prognosis, identifies the risk of post-onset attack disability and calculates the power for future clinical trials I. Nakashima (Sendai, JP)
16:51 - 17:03	240	Environmental enrichment induces microglia polarization and neurotrophin production in a focal chronic cortical model of multiple sclerosis B.A. Silva (Buenos Aires, AR)
17:03 - 17:15	241	Oxcarbazepine as a neuroprotective agent in MS: a phase IIa trial (PROXIMUS) M. Marta (London, UK)

Scientific Programme

16:15 - 17:15		Free Communications, Hall B
		Free Communication 5: MOG
		Chairs
		P.S. Sørensen (Copenhagen, DK) D. Horáková (Prague, CZ)
16:15 - 16:27	242	MOG-antibodies and multiple sclerosis in adults: a large multicentre cross-sectional study A. Cobo-Calvo (Lyon, FR)
16:27 - 16:39	243	Myelin Oligodendrocyte Glycoprotein-IgG Associated Disorders (MOGAD) Co-existing autoimmunity study: Sero-prevalence of coexisting glial (aquaporin-4), neuronal and non-organ specific autoantibodies A. Kunchok (Rochester, US)
16:39 - 16:51	244	Perivenous inflammatory demyelination with MOG-dominant myelin loss is a characteristic feature of MOG antibody-associated disease Y. Takai (Sendai, JP)
16:51 - 17:03	245	Peripheral nervous system involvement in MOG antibody-associated demyelination S. Ramanathan (Sydney, AU)
17:03 - 17:15	246	A study of MRI cortical lesions in myelin oligodendrocyte glycoprotein antibody associated disease R. Cortese (London, UK)
16:15 - 17:15		Free Communications, Hall C
		Free Communication 6: Paediatric MS - Memorial Session to honor Rogier Hintzen
		Chairs
		H.F. Harbo (Oslo, NO) J. Correale (Buenos Aires, AR)
16:15 - 16:27	247	Everything is possible: a memorial honoring a pioneer in pediatric multiple sclerosis B. Banwell (Philadelphia, US)
16:27 - 16:39	248	Anti-AQP4 antibodies positive neuromyelitis optica syndrome in children : an European-Brazilian collaborative study R.B. Paolillo (Sao Paulo, BR)
16:39 - 16:51	249	Real-world effectiveness of initial treatment with newer versus injectable disease-modifying therapies in pediatric multiple sclerosis in the US K.M. Krysko (San Francisco, US)
16:51 - 17:03	250	Cognitive processing speed in pediatric-onset MS: baseline characteristics of impairment and predictors of decline L. Krupp (Stony Brook, US)

Scientific Programme

17:03 - 17:15	251	<p>School performance and psychiatric morbidity 6 years after paediatric acute disseminated encephalomyelitis: a nationwide population-based cohort study</p> <p>M.S. Boesen (Herlev, DK)</p>
16:15 - 17:00		<p>Hot Topic, Hall D</p> <p>Hot Topic 10: Epigenetics in MS: implications for pathogenesis and disease management</p> <p>Chairs G. Castelo-Branco (Stockholm, SE) V. Maltby (Callaghan, AU)</p>
16:15 - 16:30	252	<p>Can we learn about MS brain from epigenetic changes?</p> <p>M. Jagodic (Stockholm, SE)</p>
16:30 - 16:45	253	<p>Epigenetics as a therapeutic/environmental mediator in MS</p> <p>V. Maltby (Callaghan, AU)</p>
16:45 - 17:00	254	<p>Non-invasive blood epigenetic biomarkers of CNS cell loss</p> <p>E. Akirav (Stony Brook, US)</p>
16:15 - 17:15		<p>Meet the Expert, Hall G</p> <p>Meet the Expert 4 - Pregnancy</p> <p>Details will follow shortly.</p> <p>Meet the Expert Sessions are the ideal opportunity to meet with some of the biggest names in the field of MS in an interactive setting driven by audience participation. The experts will provide answers to cases and challenging questions on four different topics.</p> <p>Chairs S. Vukusic (Lyon, FR) K. Hellwig (Bochum, DE)</p>
16:15 - 17:15		<p>Educational Session, Meeting Room T3</p> <p>Case-based Educational Session 22 (RIMS): Progressive MS: losing mobility</p> <p>Chairs V. de Groot (Amsterdam, NL) A. Guldhammer Skjerbæk (Ry, DK)</p>
16:15 - 16:35	255	<p>Diagnosing and treating gait problems using gait analysis</p> <p>V. de Groot (Amsterdam, NL)</p>

Scientific Programme

16:35 - 16:55

256

Ensuring an effective training to deal with mobility loss

A. Guldhammer Skjerbæk (Ry, DK)

17:15 - 19:15

Poster Sessions, Poster Exhibition

Poster Session 2

P714

The diagnostic value of susceptibility-weighted imaging in multiple sclerosis: the central vein sign and iron rings are specific markers of multiple sclerosis lesions

M. Clarke (Barcelona, ES)

P715

Misdiagnosis of Multiple Sclerosis

L. Midaglia (Barcelona, ES)

P716

The role of pons lesion location in differentiating multiple sclerosis from vascular risk factor related cerebral small vessel disease

R. Gerales (Oxford, UK)

P717

Impact of the McDonald 2017 vs. the McDonald 2010 criteria in patients with a first demyelinating event - a retrospective study

M. Pawlitzki (Münster, DE)

P718

Relevance of antibodies to Myelin Oligodendrocyte Glycoprotein in CSF of seronegative cases

S. Mariotto (Verona, IT)

P719

Checkpoint Inhibitor-Induced Longitudinally Extensive Transverse Myelitis: A Report on Two Cases

S. Makkawi (Calgary, CA)

P720

Cranial Nerve Enhancement in Multiple Sclerosis is Associated with Younger Age at Onset and More Severe Disease

L. Haider (London, UK)

P721

Clinical And Paraclinical Markers Of Disability Progression After A First Neurological Event: A Long Term Follow-Up Study

G. Dalla Costa (Milan, IT)

P722

Subtyping lymphocytes in cerebrospinal fluid helps to differentiate inflammatory from non-inflammatory CNS disorders

A. Wallach (New York, US)

P723

Diagnostic relevance of free light chain indices and their relation to the clinical presentation of multiple sclerosis

J. Magdic (Maribor, SI)

P724

Kynurenine in cerebrospinal fluid as a biomarker in differential diagnosis of Multiple Sclerosis

K.-W. Sühs (Hannover, DE)

P725

An experimental model of Neuromyelitis Optica Spectrum Disorder (NMOSD)-Optic Neuritis: Insights into disease mechanisms

S. Forsberg Soerensen (Odense, DK)

Scientific Programme

- P726** **Is benign MS ,benign'?**
D. Ellenberger (Hannover, DE)
- P727** **Associations between neuropathic pain and thalamic ventral posterior nucleus volume in neuromyelitis optica spectrum disorders**
S. Asseuer (Berlin, DE)
- P728** **Long term outcomes in Myelin Oligodendrocyte Glycoprotein-IgG (MOG-IgG) Associated Disorders**
A.S. Lopez-Chiriboga (Rochester, US)
- P729** **Efficacy and Safety of Tocilizumab for the Treatment of Refractory Neuromyelitis Optica**
G. Dalla Costa (Milan, IT)
- P730** **Recurrence within the same anatomical location in patients with MOG antibody associated disease**
J.-W. Hyun (Goyang, KR)
- P731** **Aggressive and refractory MOG IgG associated encephalomyelitis treated with autologous hematopoietic stem cell transplantation : first case worldwide**
C. Rush (Ottawa, CA)
- P732** **Neuromyelitis optica and the puerperal gravid cycle**
R. Alvarenga (Rio De Janeiro, BR)
- P733** **Opticospinal MS is a Neuromyelitis Optica spectrum disorder, a MS phenotype or a oligodendrocyte glycoprotein anti myelin antibody syndrome?**
R. Alvarenga (Rio De Janeiro, BR)
- P734** **Intravenous Immunoglobulin as a maintenance Immunotherapy in refractory Myelin Oligodendrocyte Glycoprotein-Antibody Associated Disorder**
V. Karthikeyan (Liverpool, UK)
- P735** **Treatment of MOG antibody associated disorders: results of an international survey**
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B.V. Ineichen (Stockholm, SE)
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M. Mühlau (Munich, DE)
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S. Motamedi (Berlin, DE)
- P933 Individual reflection of brain atrophy on intraretinal thickness changes in multiple sclerosis**
H.G. Zimmermann (Berlin, DE)
- P934 Test Retest reliability of OCT Angiography derived vessel densities in Healthy Controls and Multiple Sclerosis Patients**
O. Kwakyi (Baltimore, US)
- P935 Relationship between retinal layers thickness and disability worsening in relapsing and progressive multiple sclerosis**
M. Cellerino (Genova, IT)
- P936 Analysis of longitudinal thickness changes of retinal layers using spectral-domain optical coherence tomography automated segmentation in patients with optic neuritis**
J.-H. Min (Seoul, KR)
- P937 Association between patient-reported relapse number and cognitive performance over time**
S. Planchon (Cleveland, US)
- P938 Theory of mind deficits mediate the impact of white matter lesion load on quality of life in multiple sclerosis**
M. Pardini (Genoa, IT)

Scientific Programme

- P939** **Fatigue in multiple sclerosis: relation with clinical and neuropsychological variables, brain MRI lesions and atrophy**
C. Vizzino (Milan, IT)
- P940** **Omissions not errors are the mirror: objective cognitive fatigue in newly-diagnosed MS patients**
C. Dapor (Verona, IT)
- P941** **Slowed articulation rate is associated with information processing speed decline in multiple sclerosis: a pilot study**
L. Friedová (Prague 2, CZ)
- P942** **Anxiety and depressive symptoms in multiple sclerosis and neuromyelitis optica spectrum disorders**
G.-W. Kim (Seoul, KR)
- P943** **Comparing cognitive impairments between older and younger patients with MS at a single MS specialty center**
L.H. Hua (Las Vegas, US)
- P944** **Association of clinical frontal release signs and cognitive impairment - a prospective study with 119 multiple sclerosis patients**
N. Cerdá Fuertes (Basel, CH)
- P945** **Executive functions in patients with pediatric-onset multiple sclerosis**
M. Bogdanova (Moscow, RU)
- P946** **A longitudinal study of cognitive function in multiple sclerosis: Is decline inevitable?**
G. Koutsis (Athens, GR)
- P947** **Verbal Memory Impairment in Multiple Sclerosis is Explained by Processing Speed**
M. Zuppichini (Richardson, US)
- P948** **Pretreatment cerebrospinal fluid (CSF) and serum neurofilament light (NfL) levels in patients with PPMS in the OBOE study are correlated and are higher in patients with PPMS with T1 Gd+ brain lesions**
A. Bar-Or (Philadelphia, US)
- P949** **A Quantitative View of MS Disease Course**
R. Bermel (Cleveland, US)
- P950** **Intrathecal IgG and IgM synthesis are strongly associated with the use of highly effective therapies in relapsing MS in the Swiss MS Cohort Study**
J. Oechtering (Basel, CH)
- P951** **Inflammation-related plasma and cerebrospinal fluid biomarkers for multiple sclerosis**
J. Huang (Solna, SE)
- P952** **Kappa index versus cerebrospinal fluid IgG oligoclonal bands in everyday clinical practice: preliminary results of a prospective study**
D. Ferraro (Modena, IT)

Scientific Programme

- P953 Evaluation of the kappa index in patients with a single cerebrospinal fluid IgG band**
D. Ferraro (Modena, IT)
- P954 Intrathecal immunoglobulin synthesis and leucocyte count in cerebrospinal fluid predict serum neurofilament light chain levels in early multiple sclerosis**
S. Engel (Mainz, DE)
- P955 Diagnosis and staging of multiple sclerosis using a metabolomics-based blood test: a simple method for monitoring progression independently of EDSS**
F. Probert (Oxford, UK)
- P956 Comparing output of Brain Age machine learning algorithms using Pronto and R in multiple sclerosis**
E. Miles (London, UK)
- P957 Serum Neurofilament light chain levels predict thalamic volume loss in multiple sclerosis**
S. Magon (Basel, CH)
- P958 CSF neurofilament heavy chain release (NfH) is important in Secondary Progressive MS (SPMS) - results from the MS-SMART trial**
S. Gnanapavan (London, UK)
- P959 Kappa free light chains: a CSF biomarker for MS diagnosis**
D. Vecchio (Novara, IT)
- P960 Impaired white matter integrity along the medial longitudinal fasciculus in MS patients with INO: An MR tractography-based study**
J. Hesterman (Boston, US)
- P961 BRAIN ATROPHY IN RELAPSING OPTIC NEURITIS IS ASSOCIATED TO ANTI-MOG ANTIBODIES**
L. Navarro Cantó (Alicante, ES)
- P962 Serum neurofilaments levels are associated with blood brain barrier injury in early multiple sclerosis**
T. Uher (Prague, CZ)
- P963 Characterizing Cytokine Changes Before and After Ocrelizumab Infusions and Their Contribution to Infusion Related Reactions**
E. Alvarez (Aurora, US)
- P964 Chitinase-3-like protein 1 could be a predictor of disability progression in patients with primary progressive multiple sclerosis: A one-year follow-up**
F. Pérez-Miralles (Valencia, ES)
- P965 Long term MS clinical outcomes predicted by baseline serum neurofilament light levels**
M. Abdoli (Ottawa, CA)

Scientific Programme

- P966 Clinical and radiological prognostic value of cerebrospinal fluid glutamate in MS patients**
F. Sanchez (Buenos Aires, AR)
- P967 Alternative diagnosis of MS-like disorders with negative oligoclonal bands**
D. Vieira (Coimbra, PT)
- P968 Validating the presence in serum of other biomarkers apart from anti-AQP4 antibodies for diagnosis of neuromyelitis optica spectrum disorders**
M. Díaz Sánchez (Sevilla, ES)
- P969 Prognostic value of OCBs using the 2017 revisions of the McDonald Criteria for Multiple Sclerosis**
I. Gomes (Coimbra, PT)
- P970 Cases reported as progressive multifocal leukoencephalopathy in ocrelizumab-treated patients with multiple sclerosis**
D.B. Clifford (St Louis, US)
- P971 Tailoring B-cells depleting therapy in MS according to memory B-cells monitoring: a pilot study**
G. Novi (Genoa, IT)
- P972 Longer-term impact of natalizumab switch to moderate versus high efficacy disease modifying therapy in clinical practice**
C. Hersh (Las Vegas, US)
- P973 Trending Perceptions and Usage Share of First-Line Multiple Sclerosis Therapies among US Neurologists**
R. Naismith (Saint Louis, US)
- P974 Alemtuzumab maintains efficacy on clinical and MRI disease activity outcomes, including slowing of brain volume loss, over 9 years in RRMS patients: CARE-MS I follow-up (TOPAZ study)**
X. Montalban (Toronto, CA)
- P975 Effect of initial high-efficacy disease modifying therapy in relapsing-remitting multiple sclerosis: a nationwide cohort study**
M.D. Buron (Copenhagen, DK)
- P976 Inhibition of Bruton's Tyrosine Kinase Selectively Prevents Antigen-Activation of B cells and Ameliorates B cell-Mediated Experimental Autoimmune Encephalomyelitis**
S. Torke (Göttingen, DE)
- P977 Increase of naïve B cells, M2 macrophages and reduction of memory B/T cells during immune repopulation at 96 weeks in CLARITY assessed by immune cell deconvolution**
G. Giovannoni (London, UK)
- P978 Exploring the mitochondrial TSPO protein as a possible immunometabolic modulatory target for treatment of multiple sclerosis**
M. Weinert (London, UK)

Scientific Programme

- P979** **Comparative Study of Tolerability and Effects on Immunoglobulin Levels and CD19 Cell Counts with Ocrelizumab vs Rituximab in Multiple Sclerosis**
B. Evertsson (Stockholm, SE)
- P980** **Effect of ozanimod on the relationship between changes in cognition and grey matter volume in RMS: a post hoc exploratory analysis of the phase 3 SUNBEAM trial**
S. Schippling (Zurich, CH)
- P981** **Comparative effectiveness of Cladribine tablets vs other drugs in relapsing-remitting multiple sclerosis: an approach merging randomized controlled trial with real life data**
A. Signori (Genoa, IT)
- P982** **Demonstration of ImotopeTM efficacy in a MOG-induced Experimental Autoimmune Encephalomyelitis (EAE) model**
D. Walgraffe (Liège, BE)
- P983** **Treatment patterns in the use of dimethyl fumarate in relapsing-remitting multiple sclerosis in Denmark. A Danish nationwide cohort study**
M. Magyari (Copenhagen, DK)
- P984** **Understanding the mechanisms of action of Cladribine in innate immune cells in MS**
C. Rodriguez-Mogeda (Amsterdam, NL)
- P985** **Cladribine at all stages of MS: Two-year follow-up in 154 patients**
S. De Trane (London, UK)
- P986** **A nationwide study of fingolimod for the treatment of multiple sclerosis**
F. Sellebjerg (Copenhagen, DK)
- P987** **Targeting IFN activity to Dendritic Cells for in vivo tolerization and protection against EAE**
A. Cauwels (Gent, BE)
- P988** **TREAT-MS study of real-world effectiveness of alemtuzumab in RRMS patients in Germany: subgroup analysis by number of prior disease-modifying therapies**
R. Haase (Dresden, DE)
- P989** **Nocebo in multiple sclerosis trials: a meta-analysis on oral and newer injectable disease-modifying treatments**
P. Gklinos (Athens, GR)
- P990** **Lymphocyte changes induces by alemtuzumab in multiple sclerosis patients**
S. Medina (Madrid, ES)
- P991** **Study Design and Patient Demographics of the ULTIMATE Phase III Trials Evaluating Ublituximab (UTX), a Novel Glycoengineered Anti-CD20 Monoclonal Antibody (mAb), in Patients with Relapsing Multiple Sclerosis (RMS)**
L. Steinman (Stanford, US)

Scientific Programme

- P992 Fingolimod discontinuation: the experience of a single-centre cohort**
J. Frau (Cagliari, IT)
- P993 Absorption, metabolism, and excretion, in vitro pharmacology, and clinical pharmacokinetics of ozanimod, a novel sphingosine 1-phosphate receptor agonist**
J.Q. Tran (Summit, US)
- P994 Clinical predictors of dimethyl-fumarate response in multiple sclerosis: a real life multicentre study**
E. Signoriello (Naples, IT)
- P995 Do real world studies include real world patients in MS?**
J.I. Rojas (Buenos Aires, AR)
- P996 Effect of ozanimod on circulating leukocyte subtypes: data from a randomised, open-label, phase 1 study in patients with relapsing multiple sclerosis**
S. Harris (Summit, US)
- P997 Cladribine modifies functional properties of murine microglia**
L. Jorgensen (Odense C, DK)
- P998 Cladribine as treatment of multiple sclerosis, real world experience**
E.G. Celius (Oslo, NO)
- P999 Cross-Sectional Analysis of Peripheral Blood Mononuclear Cells in Lymphopenic and Non-Lymphopenic Relapsing-Remitting Multiple Sclerosis (RRMS) Patients Treated with Dimethyl Fumarate**
F. Giuliani (Edmonton, CA)
- P1000 Safety and efficacy of various DMTs in MS patients who failed Alemtuzumab Therapy**
P. Miller (Fort Collins, US)
- P1001 A post-marketing observational monocentric study of 3 years of follow up of a cohort of multiple sclerosis patients treated with Dimethyl Fumarate**
L. Moiola (Milan, IT)
- P1002 High-Dose Biotin in Progressive Multiple Sclerosis: a prospective study of 178 patients in routine clinical practice**
S. Wiertlewski (Nantes cedex 1, FR)
- P1003 Improvement in the Composite Endpoint of Timed 25 Foot Walk, Maximum Walking Distance, or EDSS in a cohort of patients from the MD1003 (high dose pharmaceutical-grade biotin) in the French Early Access Program**
A. Tourbah (Reims, FR)
- P1004 Modulation of large-scale functional networks occurs in MS patients starting fingolimod or natalizumab: a 2-year resting state functional connectivity study**
P. Valsasina (Milan, IT)

Scientific Programme

- P1005** **CNS-selective thyromimetics protect oligodendrocytes and inhibit demyelination in experimental autoimmune encephalomyelitis**
D. Bourdette (Portland, US)
- P1007** **High dose pharmaceutical grade biotin (MD1003) protects axons in a TMEV-induced mouse model of progressive multiple sclerosis**
A. Warrington (Rochester, US)
- P1008** **Differential CNS effects of siponimod vs. fingolimod revealed by single-cell nuclear transcriptome analyses of human primary astrocytes**
J. Chun (La Jolla, US)
- P1009** **Immunological and clinical follow up after autologous bonemarrow mesenchymal stromal cell therapy in progressive multiple sclerosis: a phase I clinical study**
E. Iacobaeus (Stockholm, SE)
- P1010** **The Impact of Ocrelizumab on Immunoglobulin Levels and the Risk of Infection**
K. Smoot (Portland, US)
- P1011** **Utilization, safety, and tolerability of ocrelizumab: year 2 data from the Providence Ocrelizumab Registry**
K. Smoot (Portland, US)
- P1012** **Alemtuzumab efficacy and safety were maintained over 8 years in relapsing-remitting multiple sclerosis patients with highly active disease from CARE-MS I: TOPAZ study follow-up**
V. Limmroth (Cologne, DE)
- P1013** **Long-term effect of natalizumab in relapsing-remitting multiple sclerosis: TYSTEN cohort**
K. Bigaut (Strasbourg, FR)
- P1014** **A Swedish real word study of the long-term effectiveness and safety of fingolimod (IMSE 2) with focus on patients treated at least 48 months**
A. Fält (Stockholm, SE)
- P1015** **Long-term reduction of relapse rate and confirmed disability progression after 6 years of ocrelizumab treatment in patients with relapsing multiple sclerosis**
G. Giovannoni (London, UK)
- P1016** **Baseline and on-study variables that predict 15-year disease activity in patients with CIS treated with interferon beta-1b in the BENEFIT trial**
L. Kappos (Basel, CH)
- P1017** **Real-world experience with Ocrelizumab in the MSBase Registry**
H. Butzkueven (Melbourne, AU)
- P1018** **Effect of natalizumab on information processing speed in multiple sclerosis: a nationwide phase IV study**
A. Manouchehrinia (Stockholm, SE)

Scientific Programme

- P1019 Safety, pregnancy outcomes, and clinical effectiveness of peginterferon beta-1a for patients with newly diagnosed and non-newly diagnosed relapsing multiple sclerosis: third interim analysis of the Plegridy Observational Program**
M. Salvetti (Rome, IT)
- P1020 Should Immune Reconstitution Inflammatory Syndrome in natalizumab related Progressive Multifocal Leukoencephalopathy be prevented?**
C. Scarpazza (Castel Mella, IT)
- P1021 Longitudinal follow up to determine the clinical relevance of anti-drug antibodies against Rituximab in multiple sclerosis**
N. Dunn (Stockholm, SE)
- P1022 Safety profile of ocrelizumab for the treatment of multiple sclerosis: a systematic review**
H.S. Ng (Vancouver, CA)
- P1023 Long-term Follow-up Results from the Phase 2 Multicenter Study of Ublituximab (UTX), a Novel Glycoengineered Anti-CD20 Monoclonal Antibody (mAb), in Patients with Relapsing Multiple Sclerosis (RMS)**
E. Fox (Round Rock, US)
- P1024 First ever treatment in MS : fingolimod vs dimethyl fumarate, the Lausanne real-life experience**
V. Pantazou (Lausanne, CH)
- P1025 A possible case of Serum Sickness-like reaction after ocrelizumab**
V.F. Moreira Ferreira (Boston, US)
- P1026 Development of a high sensitive molecular assay to improve individualized monitoring of Rituximab treatment in patients with Neuromyelitis Optica Spectrum Disorders**
F. Montarolo (Orbassano, IT)
- P1027 DMTs Drop out analysis: 10 years follow-up in a cohort of relapsing-remitting multiple sclerosis patients in Argentina**
M. Curbelo (Buenos Aires, AR)
- P1028 Real life efficacy and tolerability of Fingolimod: multicentre study in Galicia (GALIFINGO 2019)**
A. Pato (Vigo, ES)
- P1029 Treatment choice after Natalizumab discontinuation: results from an Italian multicenter retrospective study**
C. Chisari (Catania, IT)
- P1030 Loss of MEDA under two standard treatment sequences in relapsing-remitting Multiple Sclerosis**
J.P. Jürß (Marburg, DE)
- P1031 Long-term safety and efficacy of ozanimod in relapsing multiple sclerosis: results from the DAYBREAK open-label extension study**
L. Steinman (Stanford, US)

Scientific Programme

- P1032 Analyzing the effect of different immunomodulatory pretreatment on alemtuzumab induction in active RRMS patients: a prospective longitudinal study**
S. Pfeuffer (Muenster, DE)
- P1033 No significant difference in relapse outcomes in patients switching to natalizumab extended interval dosing or remaining on standard interval dosing: propensity score comparative effectiveness analysis of patients in the TYSABRI Observational Program**
H. Butzkueven (Melbourne, AU)
- P1034 Effectiveness of subcutaneous interferon beta-1a 22/44 µg versus teriflunomide in newly treated patients with multiple sclerosis. A study in a French nationwide cohort of multiple sclerosis: Observatoire Français de la sclérose en plaques (OFSEP)**
F. Rollot (Lyon, FR)
- P1035 Effect of extended interval dosing of natalizumab on patients' perceived disease activity, information processing speed and physical disability**
K. Fink (Stockholm, SE)
- P1036 Rebound Disease Activity after Cessation of Fingolimod Treatment**
T. Gündüz (Istanbul, TR)
- P1037 Change in Absolute Lymphocyte Count is not a Biomarker of Clinical Response and Does Not Correlate with Change in Serum Neurofilament Light for Patients Treated with Delayed-Release Dimethyl Fumarate**
E.E. Longbrake (New Haven, US)
- P1038 Susceptibility to vaccine-preventable infections in multiple sclerosis patients who are candidate to immunosuppressive therapies: the Cemcat cohort seroprevalence study**
S. Otero-Romero (Barcelona, ES)
- P1039 Alemtuzumab Infusion-associated reactions are not related to infusion rate**
F. Gascon-Gimenez (Valencia, ES)
- P1040 Alemtuzumab-induced thyroid dysfunction - follow up data from the Northern Irish cohort**
G. McDonnell (Belfast, UK)
- P1041 Lymphocytes Increase and Disease Activity Remains Stable in Patients who Discontinue Dimethyl Fumarate With Lymphopenia**
A. Chan (Bern, CH)
- P1042 Progressive Multifocal Leukoencephalopathy in a patient treated by Dimethyl Fumarate for Multiple Sclerosis with no lymphopenia but exhausted T lymphocyte subpopulations**
J. Garcia (Paris, FR)
- P1043 A Conversion's Tale: JCV Antibody Index Conversion Rates in 100 Relapsing Remitting Multiple Sclerosis Patients Receiving Disease Modifying Therapy**
P. Altmann (Vienna, AT)

Scientific Programme

- P1044** **Specific patterns in decline of immune cells upon treatment with orale cladribine**
R. Pul (Essen, DE)
- P1045** **10 years of Natalizumab treatment in a multiple sclerosis center in Brazil: experience beyond 24 months in Anti-JC virus antibodies positive patients**
R.B. Thomaz (São Paulo, BR)
- P1046** **Challenges of initiating Rituximab in non-naïve patients with relapsing-remitting multiple sclerosis: a monocentric study**
M. Boudot de la Motte (Paris, FR)
- P1047** **Effect of ozanimod on neurofilament light chain level in relapsing multiple sclerosis: pooled results from phase 2 and phase 3 trials**
S. Harris (Summit, US)
- P1048** **Determinants of Therapeutic Lag in Relapsing Multiple Sclerosis**
I. Roos (Melbourne, AU)
- P1049** **Investigating the biodistribution of the anti-inflammatory drug teriflunomide in vivo using 19F MRI and mass spectrometry**
C. Prinz (Berlin, DE)
- P1050** **Five and seven-year prognostic value of new effectiveness measures (NEDA, MEDA, six-month delayed NEDA) in relapsing-remitting multiple sclerosis**
E. Tsantes (Parma, IT)
- P1051** **Effects of fingolimod and natalizumab on brain T1/T2-weighted and magnetization transfer ratios: a 2-year study**
P. Preziosa (Milan, IT)
- P1052** **Deciphering morphology of Evoked Potentials**
J. Yperman (Diepenbeek, BE)
- P1053** **Therapeutic lag in relapsing multiple sclerosis**
I. Roos (Melbourne, AU)
- P1054** **Combination of early imaging and clinical factors improves prediction of clinical disease activity in early multiple sclerosis patients over 10 years follow-up**
T. Hrnčiarova (Prague, CZ)
- P1055** **Disability improvement after alemtuzumab is associated with T2 lesion volume shrinkage in multiple sclerosis**
S. Ruggieri (Rome, IT)
- P1056** **Thalamus atrophy as a decision criteria for therapy switch in highly active MS**
A. Raji (Hamburg, DE)
- P1057** **Relationship Between Grey Matter Atrophy, Disability and Cognition in Patients with Secondary Progressive Multiple Sclerosis: Analysis from the EXPAND Study**
D.L. Arnold (Montreal, CA)

Scientific Programme

- P1058** **Exercise improves fatigue in persons with Multiple Sclerosis**
B. Giesser (Los Angeles, US)
- P1059** **Cost Per Response Analysis of Repository Corticotropin Injection versus Other Late-Line Treatments for Multiple Sclerosis Relapses in Adults**
G.J. Wan (Bedminster, US)
- P1060** **Dextromethorphan overdose and toxicity in an MS patient taking dextromethorphan plus quinidine for pseudobulbar affect: The First Case Report**
D. Kantor (Boca Raton, US)
- P1061** **Rituximab does not increase the risk of malignancy or breast cancer in two large US and Swedish rituximab-treated multiple sclerosis cohorts**
A. Langer-Gould (Pasadena, US)
- P1062** **Importance of face-to-face consultation in complex decision-making about disease modifying treatments in multiple sclerosis: results of the Decisions Of Uncertainty Broaching Therapies in MS (MS-DOUBT) study**
D. Wilkie (London, UK)
- P1063** **Trends in disease-modifying therapies' (DMTs) use and efficacy between 2010 and 2017 in outpatients with relapsing-remitting-multiple-sclerosis (RRMS) in Germany**
A. Bergmann (Neuburg, DE)
- P1064** **Factors associated with therapeutic inertia among pharmacists managing people with multiple sclerosis**
J. Maurino (Madrid, ES)
- P1065** **Treatment patterns among treatment-naïve multiple sclerosis patients in a commercially insured US population**
D. Kantor (Boca Raton, US)
- P1066** **Higher vitamin D3 supplementation dose is effective and safe during winter time in patients with relapsing-remitting multiple sclerosis: double-blind randomized clinical trial**
S. Gselman (Maribor, SI)
- P1067** **Managing laboratory interferences with biotin in multiple sclerosis patients treated with high doses of biotin**
M. Gudesblatt (Patchogue, US)
- P1068** **Systematic literature review and network meta-analysis of ozanimod compared with other treatments in relapsing-remitting multiple sclerosis**
T. Tencer (Summit, US)
- P1069** **Neurovascular reactivity after Fingolimod treatment in patients with MS**
G. Tekgol (Eskişehir, TR)
- P1070** **Cladribine tablets versus other disease-modifying oral treatments in multiple sclerosis (MS) in achieving no evidence of radiological and clinical disease activity (NEDA) - network meta-analysis (NMA)**
H. Bartosik-Psujek (Rzeszow, PL)

Scientific Programme

- P1071** **Nurse-led immunotreatment DECision Coaching In people with Multiple Sclerosis (DECIMS) - cluster randomised controlled trial and process evaluation (ISRCTN37929939)**
A.C. Rahn (Hamburg, DE)
- P1072** **Evaluation of a comprehensive rehabilitative programme on quality of life, disease impact and symptomatic control in Persons with Multiple Sclerosis**
V. Karthikeyan (Liverpool, UK)
- P1073** **Deteriorations in trunk control, dexterity and functionality in patients with multiple sclerosis: A 3 years follow-up study**
N. Cetisli Korkmaz (Denizli, TR)
- P1074** **Goals set by people with multiple sclerosis participating in fatigue self-management programs**
S. Askari (Kingston, CA)
- P1075** **Cognitive Estimation Test and abstract reasoning in mild MS patients: a pilot study**
M. Fratino (Roma, IT)
- P1076** **'It's like a disconnect'- Understanding sensorimotor integration as an invisible impairment in people with multiple sclerosis with low disability**
M.C. Kirkland (St. John's, CA)
- P1077** **Greater trochanteric pain syndrome and multiple sclerosis: prevalence and predisposing factors**
C. Donzé (Lille, FR)
- P1078** **MRI-based measures of motor system explain clinical measures of limb function**
R. Bonacchi (Milan, IT)
- P1079** **The impact of cortical sensorimotor white matter lesions on hand function**
W.O. Lasisi (St. John's, CA)
- P1080** **Computer-assisted cognitive rehabilitation increases regulatory B cell ratios in the peripheral blood**
E. Tuzun (Istanbul, TR)

18:15 - 19:15

Satellite Symposium, Hall A

Satellite Symposium 8: Sustained control of MS: lessons from the real world

Supported by Merck

Chairs

J. Hillert (Stockholm, SE)
M. Williams (Atlanta, Georgia, US)

Scientific Programme

18:15 - 18:20	259	Welcome and objectives M. Williams (Atlanta, Georgia, US)
18:20 - 18:35	260	Bridging the MS practice gap with innovative registry studies J. Hillert (Stockholm, SE)
18:35 - 18:55	261	Learnings from MSBase S. Hodgkinson (NL)
18:55 - 19:10	262	The German experience H. Wiendl (Münster, DE)
19:10 - 19:15	263	Closing J. Hillert (Stockholm, SE)
Satellite Symposium, Hall D		
18:15 - 19:15		Satellite Symposium 9: MS: What matters to the patient? Supported by Janssen R&D
18:15 - 18:20	257	Welcome and introduction M.S. Freedman (Ottawa, CA)
18:20 - 18:35	257a	MS through the eyes of the clinician R.J. Fox (Cleveland, US)
18:35 - 18:50	258	MS through the eyes of the patient F. Zipp (Mainz, DE)
18:50 - 19:05	258a	Are we assessing therapies in a manner that addresses the concerns of both clinicians and patients? How do we minimise these differences? M.S. Freedman (Ottawa, CA) R.J. Fox (Cleveland, US) F. Zipp (Mainz, DE)
19:05 - 19:15	258b	Q&A and close M.S. Freedman (Ottawa, CA) R.J. Fox (Cleveland, US) F. Zipp (Mainz, DE)

Scientific Programme

Friday, 13 September 2019

07:30 - 08:30		<p>Satellite Symposium, Hall D</p> <p>Satellite Symposium 10: Controversies in progressive MS: different angles on one disease state</p> <p>Supported by MedDay Pharmaceuticals</p> <p>Chairs X. Montalban (Toronto, CA)</p>
07:30 - 07:35	264	<p>Welcome and opening X. Montalban (Toronto, CA)</p>
07:35 - 07:45	265	<p>Active/not active progressive MS: why we should care? F. Lublin (New York, US)</p>
07:45 - 07:55	266	<p>Managing progressive MS in the clinic X. Montalban (Toronto, CA)</p>
07:55 - 08:05	267	<p>Measuring neurodegeneration in progressive MS F. Barkhof (London, UK)</p>
08:05 - 08:15	268	<p>Is energy deficit a cause of disease progression? D.J. Mahad (Edinburgh, UK)</p>
08:15 - 08:30	269	<p>Discussion and debate X. Montalban (Toronto, CA) F. Lublin (New York, US) D.J. Mahad (Edinburgh, UK) F. Barkhof (London, UK)</p>
08:30 - 10:00		<p>Scientific Session, Hall A</p> <p>Scientific Session 11: Registry-based MS research</p> <p>Chairs K.-M. Myhr (Bergen, NO) M. Trojano (Bari, IT)</p>
08:30 - 08:50	270	<p>Infection studies in registry-based MS research S. Montgomery (Stockholm, SE)</p>
08:50 - 09:10	271	<p>What registries reveal on child onset MS M. Magyari (Copenhagen, DK)</p>
		Platform presentations of related original papers
09:10 - 09:22	272	<p>Risk of comorbidity in patients with multiple sclerosis: a nationwide cohort study in Sweden F. Piehl (Stockholm, SE)</p>

Scientific Programme

09:22 - 09:34	273	Disability progression unrelated to relapses in relapsing-remitting multiple sclerosis: Insights from the Swiss multiple sclerosis cohort study J. Lorscheider (Basel, CH)
09:34 - 09:46	274	Excess mortality in patients with relapsing-onset multiple sclerosis depends on age rather than disease duration: new insights from an innovative flexible model applied on French OFSEP data ('Observatoire Français de la Sclérose en Plaques') E. Leray (Rennes, FR)
09:46 - 09:58	275	Excess mortality of people suffering from multiple sclerosis in Germany P. Albrecht (Düsseldorf, DE)
08:30 - 10:00		Scientific Session, Hall B Scientific Session 12: Immunopathogenesis and antigen-specific therapies Chairs E. Iacobaeus (Stockholm, SE) F. Zipp (Mainz, DE)
08:30 - 08:50	276	Antigen specific MS treatment revisited - recent development and prospects R. Martin (Zurich, CH)
08:50 - 09:10	277	A future for antigen specific immunotherapy for multiple sclerosis D. Wraith (Birmingham, UK)
Platform presentations of related original papers		
09:10 - 09:22	278	Specialized pro-resolving lipid mediator production in the cerebrospinal fluid is impaired in multiple sclerosis: implications for its pathogenesis and therapy G. Kooij (Amsterdam, NL)
09:22 - 09:34	279	Arginase 1- expressing myeloid cells regulate Th17- mediated EAE J. Atkinson (Columbus, US)
09:34 - 09:46	280	Myelin-specific CD8+ T cells in MS exhibit a unique activated phenotype and are depleted by anti-CD20 therapy J. Sabatino (San Francisco, US)
09:46 - 09:58	281	High dose vitamin D worsens experimental CNS autoimmune disease by raising T cell-excitatory calcium D. Häusler (Goettingen, DE)

Scientific Programme

08:30 - 10:00		Scientific Session, Hall C Scientific Session 13: Soluble and electrophysiological biomarkers Chairs J. Salzer (Umeå, SE) S. Gnanapavan (London, UK)
08:30 - 08:50	282	Moving from CSF to blood: monitoring disease activity in MS using serum neurofilament light protein J. Lycke (Gothenburg, SE)
08:50 - 09:10	283	OCT as a prognostic marker P. Calabresi (Baltimore, US) Platform presentations of related original papers
09:10 - 09:22	284	Serum neurofilament light chain as a presymptomatic biomarker in multiple sclerosis K. Bjornevik (Boston, US)
09:22 - 09:34	285	Serum neurofilament light chain levels correlate with peripapillary retinal nerve fibre layer thinning as measured by optical coherence tomography in multiple sclerosis G. Bsteh (Vienna, AT)
09:34 - 09:46	286	Markers of glial processes and axonal damage in CSF and serum help to differentiate between relapsing-remitting and progressive forms of MS A. Huss (Ulm, DE)
09:46 - 09:58	287	Soluble CD27 a biomarker of T cell activity in intrathecal inflammation in patients with relapsing-remitting multiple sclerosis M.T. Cencioni (London, UK)
08:30 - 10:00		Scientific Session, Hall D Scientific Session 14: Socioeconomic outcomes in MS Chairs K. Alexanderson (Stockholm, SE) P. Flachenecker (Bad Wildbad, DE)
08:30 - 08:50	288	Burden and cost of multiple sclerosis G. Kobelt (Stockholm, SE)
08:50 - 09:10	289	Socioeconomy - accessible and valid outcome measures in MS J. Hillert (Stockholm, SE) Platform presentations of related original papers
09:10 - 09:22	290	The economic impact of multiple sclerosis: a preliminary look at the North American registry for care and research in multiple sclerosis Y. Mao-Draayer (Ann Arbor, US)

Scientific Programme

09:22 - 09:34	291	Real-world evidence on the influence of relapses and relapse associated progression on societal economic costs in patients with multiple sclerosis N.-H. Ness (Dresden, DE)
09:34 - 09:46	292	Health service utilization in immigrants compared to long-term residents with MS in Ontario, Canada D. Rotstein (Toronto, CA)
09:46 - 09:58	293	Identifying disability level in multiple sclerosis patients in a U.S.-based health plan claims database R. Berkovich (Los Angeles, US)

08:30 - 10:00

Educational Session, Hall E

Educational Session 23: Radiologically Isolated Syndrome (RIS): incidental MRI findings or subclinical MS?

Level: Basic

(Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)

Chairs

N. De Stefano (Siena, IT)
C. Lebrun (Nice, FR)

08:30 - 09:00	294	RIS: just incidental MRI findings or a real disease entity? D. Okuda (Dallas, US)
09:00 - 09:30	295	Can we diagnose subclinical MS? N. De Stefano (Siena, IT)
09:30 - 10:00	296	The management of RIS C. Lebrun (Nice, FR)

08:30 - 10:00

Educational Session, Hall F

Educational Session 24: Pathology of MS

Level: Advanced

(Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists)

Chairs

H. Lassmann (Wien, AT)
O. Howell (Swansee, UK)

08:30 - 09:00	297	The inflammatory response in the MS brain: implications for pathogenesis and therapy H. Lassmann (Wien, AT)
09:00 - 09:30	298	The spectrum of cortical pathology in the MS brain: when, where and why O. Howell (Swansee, UK)

Scientific Programme

09:30 - 10:00	299	Pathological correlates of 7T MRI: how far can we image MS pathology in the living patient S. Hametner (Vienna, AT)
10:30 - 12:00		Scientific Session, Hall A Scientific Session 15: How to optimise long term benefit of MS treatment, therapeutic strategy Chairs T. Ziemssen (Dresden, DE) E. Kingwell (Vancouver, CA)
10:30 - 10:50	300	Why induction therapy is the preferred principle over treatment escalation A.J. Coles (Cambridge, UK)
10:50 - 11:10	301	Why escalation therapy is the preferred principle over treatment induction E. Waubant (San Francisco, US) platform presentations of related original papers
11:10 - 11:22	302	Age at disease onset and clinical outcomes in patients with multiple sclerosis on immunomodulatory treatment V. von Wyl (Zurich, CH)
11:22 - 11:34	303	Exposure to disease modifying drugs reduces disability progression in pediatric-, adult- and late-onset relapsing multiple sclerosis: real world data from the early multiple sclerosis Italian cohort (E-MUSIC) M. Fonderico (Florence, IT)
11:34 - 11:46	304	Predicting long-term sustained disability progression in multiple sclerosis S. Sharmin (Melbourne, AU)
11:46 - 11:58	305	Treatment response scoring systems to assess long term prognosis in relapsing-remitting multiple sclerosis patients J. Rio (Barcelona, ES)
10:30 - 12:00		Scientific Session, Hall B Scientific Session 16: Quantitative imaging biomarkers Chairs T. Granberg (Stockholm, SE) C. Granziera (Basel, CH)
10:30 - 10:50	306	Quantification and interpretation of brain atrophy in MS N. De Stefano (Siena, IT)

Scientific Programme

10:50 - 11:10	307	Quantitative MRI and imaging biomarkers of the spinal cord in MS O. Ciccarelli (London, UK) platform presentations of related original papers
11:10 - 11:22	308	Can post-mortem MRI be used as a proxy for in-vivo? M.D. Steenwijk (Amsterdam, NL)
11:22 - 11:34	309	Modeling the effect of white matter lesions on grey matter atrophy in MS based on data from the human connectome project M. Bussas (München, DE)
11:34 - 11:46	310	In vivo characterization of cortical lesion demyelination and remyelination in early multiple sclerosis by quantitative 7 Tesla MRI V. Barletta (Boston, US)
11:46 - 11:58	311	In-vivo mapping of thalamic pathological mechanisms in pediatric patients with MS E. De Meo (Milan, IT)

Scientific Session, Hall C

10:30 - 12:00 **ECTRIMS - EAN Session: Emerging concepts of relapsing and progressive MS**

Chairs

C. Enzinger (Graz, AT)
M.P. Amato (Florence, IT)

10:30 - 11:00	312	The contribution of relapses to progression - what do we learn from biomarker studies? L. Kappos (Basel, CH)
11:00 - 11:30	313	Assessing and understanding relapse independent progression in different disease stages G. Comi (Milan, IT)
11:30 - 12:00	314	MRI measures of neuroinflammation and neurodegeneration M.A. Rocca (Milan, IT)

Scientific Session, Hall D

10:30 - 12:00 **Scientific Session RIMS 3: Rehabilitation: one size doesn't fit all**

Chairs

S. Coote (Limerick, IR)
V. de Groot (Amsterdam, NL)

10:30 - 10:50	315	Patient centered approach in rehabilitation D. Kos (Leuven, BE)
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Scientific Programme

10:50 - 11:10	316	Wearable technology: how can we use it to measure and improve functioning in MS G. Brichetto (Genoa, IT) Platform presentations of related original papers
11:10 - 11:22	317	Perceived fatigue is a barrier to physical activity participation in people with multiple sclerosis and minimal disability L. Frid (Tel-Hashomer, IL)
11:22 - 11:34	318	Effect of continuous positive airway pressure treatment of obstructive sleep apnea-hypopnea on fatigue in multiple sclerosis: a randomized, placebo-controlled trial (SAMS-PAP study) D. Trojan (Montreal, CA)
11:34 - 11:46	319	Psychosocial explanatory factors of balance confidence in persons with multiple sclerosis Z. Abasiyanik (Izmir, TR)
11:46 - 11:58	320	Perception of multiple sclerosis impact and self-management in patients with multiple sclerosis: mediating effect of coping strategies M. Wilski (Poznan, PL)
10:30 - 12:00		Educational Session, Hall E Educational Session 25: Preventing, monitoring and managing infectious complications of MS therapies Level: Basic (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists) Chairs A. Vidal-Jordana (Barcelona, ES) L. Prosperini (Rome, IT)
10:30 - 11:00	321	Prevention of infectious complications of MS therapies A. Vidal-Jordana (Barcelona, ES)
11:00 - 11:30	322	Monitoring MS therapies to rapidly detect infectious complications L. Prosperini (Rome, IT)
11:30 - 12:00	323	Managing infectious complications of MS therapies E. Ciampi (Santiago, CL)

Scientific Programme

		Educational Session, Hall F
10:30 - 12:00		Educational Session 26: Which remyelination strategies are most promising? Level: Advanced (Basic = neurologists in training, non MS-specialists / Intermediate = board examined neurologists / Advanced = MS specialists) Chairs M. Simons (Munich, DE) G. Castelo-Branco (Stockholm, SE)
10:30 - 11:00	324	Remyelination: insights from mouse models and transcriptomic studies G. Castelo-Branco (Stockholm, SE)
11:00 - 11:30	325	Remyelination: insights from human neuropathology C. Stadelmann (Göttingen, DE)
11:30 - 12:00	326	Remyelination: molecular mechanisms and therapeutic developments M. Simons (Munich, DE)
		Scientific Session, Hall F
12:00 - 13:00		Google Hangout A google hangout broadcast from ECTRIMS with Barts MS researchers with people with MS sharing highlights from the meeting. View the livestream on the BartsMS YouTube page! Chairs R. Aldam (London, UK) M. Marta (London, UK)
12:00 - 13:00	327	ECTRIMS 2019 highlights D. Baker (London, UK) S. Gnanapavan (London, UK)
		Poster Sessions, Poster Exhibition
12:15 - 14:15		Poster Session 3
	P1081	Validation of the multiple sclerosis diagnosis codes of patients aged 16-64 years recorded in the Swedish National Patient Register in 2001-2013 by two sequential register-based case-definition algorithms C. Murley (Stockholm, SE)
	P1082	Visual Evoked Potentials Improve the Prediction of Multiple Sclerosis in Patients with Clinically Isolated Syndromes G. Dalla Costa (Milan, IT)
	P1083	Multiple sclerosis misdiagnosis in a reference MS center in Argentina M.I. Gaitán (Buenos Aires, AR)

Scientific Programme

- P1084 Screening for differential diagnoses in MS: evaluation of inclusion criteria for extensive diagnostic workup**
R. Schmidt (Leipzig, DE)
- P1085 18F-3,4-dihydroxyphenylalanine positron emission tomography features in brain tumefactive demyelinating lesions**
E. Sbragia (Genoa, IT)
- P1086 CSF kappa free light chains detection: comparison with oligoclonal bands in Multiple Sclerosis diagnosis**
F. Montarolo (Orbassano, IT)
- P1087 Should we systematically test patients with clinically isolated syndrome for HIV, borrelia and syphilis?**
B. Rodríguez-Acevedo (Barcelona, ES)
- P1088 Multiple sclerosis and fabry Disease, overlooked in the differential diagnosis of multiple sclerosis? in Turkish population**
S. Guler (Edirne, TR)
- P1089 Hemorrhagic Longitudinally Extensive Transverse Myelitis: Characteristic Features and Long-term Follow-up**
R. Karabudak (Ankara, TR)
- P1090 Physicians' perspectives on the identification and diagnosis of secondary progressive multiple sclerosis during the clinical encounter**
T. Vollmer (Denver, US)
- P1091 Long-term outcome of pregnant women with neuromyelitis optica spectrum disorder**
S.-H. Kim (Goyang, KR)
- P1092 Distinction of double seronegative neuromyelitis optica spectrum disease from AQP4-IgG seropositive and MOG-IgG seropositive cases in Asian patients**
H.W. Kim (Seoul, KR)
- P1093 Cervical Cord Atrophy in AQP4-Ab NMOSD, MOG-Ab Disease & MS**
R. Mariano (Oxford, UK)
- P1094 Causes of death in AQP4-IgG neuromyelitis optica spectrum disorder (NMOSD) in the United Kingdom NMOSD Service**
E. Gibbons (Liverpool, UK)
- P1095 The emerging role of T cells in NMOSD disease pathogenesis**
M. Lindner (Münster, DE)
- P1096 Blood-brain barrier-activation in anti-myelin oligodendrocyte glycoprotein antibody associated disorders**
F. Shimizu (Ube, JP)
- P1097 Characterization of B cell subset changes following treatment of Neuromyelitis Optica Spectrum Disorder with inebilizumab: Results from the N-Momentum study randomized control period**
J.L. Bennett (Aurora, US)

Scientific Programme

- P1098 Late-onset multiple sclerosis: is it a rare entity?**
I. Sereike (Vilnius, LT)
- P1099 Brain histopathological study and prognosis in two patients with MOG-antibody-associated demyelinating pseudotumor**
Y. Shu (Guangzhou, CN)
- P1100 Stroke-like presentation of Baló's Concentric Sclerosis and fatal outcome in a patient with Common Variable Immunodeficiency**
R.B. Thomaz (São Paulo, BR)
- P1101 Brain magnetic resonance imaging features in MS and neuromyelitis optica spectrum disorders (NMOSD) patients with or without aquaporin-4 antibody in a Latin American population**
F. Silveira (Buenos Aires, AR)
- P1102 Retrospective analysis of chronic relapsing inflammatory optic neuropathy**
A. Thuringer (Kansas City, US)
- P1103 Diagnostic procedures in suspected attacks in patients with neuromyelitis optica spectrum disorders: results of an international survey**
M. D'Souza (Basel, CH)
- P1104 Clinicoradiological features of the cerebellum in Japanese cohorts of MS and NMOSD**
T. Wakasugi (Niigata, JP)
- P1105 Children with a first demyelination syndrome: the importance of applying the 2017 McDonald criteria together with biomarkers**
T. Armangue (Barcelona, ES)
- P1106 Recovery of pediatric patients after first multiple sclerosis relapse is associated with suppression of antigen presenting mechanism**
M. Gurevich (Ramat-Gan, IL)
- P1107 Contribution of Age to Severity of First Multiple Sclerosis Relapse and Short-term Clinical Outcome**
M. Gurevich (Ramat-Gan, IL)
- P1108 Long-term follow up of an Italian cohort of pediatric Multiple Sclerosis patients: real world data from San Raffaele Hospital**
C. Zanetta (Milan, IT)
- P1109 No evidence of disease activity including cognitive evaluation (NEDA-3 plus status) in naïve pediatric multiple sclerosis patients treated with natalizumab for 2-years: a longitudinal prospective study**
M. Margoni (Padua, IT)
- P1110 White matter lesion volume is correlated with changes in thalamic volume in proximity to the white matter interface but not in proximity to the CSF interface in pediatric MS**
G. Fadda (Philadelphia, US)

Scientific Programme

- P1111 Clinical predictors of relapse in children with the first demyelinating event**
K. Nevmerzhitskaya (Ekaterinburg, RU)
- P1112 Seamless phase II-III adaptive trial design elements for progressive MS: Neurofilament light chain (phase II/interim endpoint), phase III endpoints and patient populations**
D.R. Lieberman (London, UK)
- P1113 Microglial activation associates with previous relapse activity in a cohort of relapsing-remitting multiple sclerosis patients at risk of progression**
S. Laaksonen (Turku, FI)
- P1114 A Population-based Comparison of Cervical Spine Corticospinal Tract Lesions in Benign and Secondary Progressive MS**
E. Sechi (Rochester, US)
- P1115 Positive behavioral impact of high dose Pharmaceutical grade Biotin, MD1003, in mitochondrial mutant mice with neuron-specific respiratory deficiency**
D.J. Mahad (Edinburgh, UK)
- P1116 Leptomeningeal enhancement is common in progressive Multiple Sclerosis patients in 1.5T MRI and correlates with age and disease progression**
M. Vercellino (Torino, IT)
- P1117 The Delay In Diagnosing Secondary Progressive Multiple Sclerosis (SPMS) in Relapsing Remitting Multiple Sclerosis (RRMS) Patients Who Show Potential Signs Of Progression in Europe and the United States**
J. White (London, UK)
- P1118 The impact of pain and lower limb spasticity to functionality and quality of life in patients with progressive forms of Multiple Sclerosis**
S. Rodic (Belgrade, RS)
- P1119 Thirty years outcomes of 2295 patients with relapsing at onset multiple sclerosis and low disability ten years after diagnosis: a population-based observational study**
G. Mathey (Nancy, FR)
- P1120 Understanding disability trajectories in a contemporary multiple sclerosis cohort using multistate models**
K. Harding (Newport, UK)
- P1121 Aging with MS - physical and mental function in women with MS compared to non-affected peers in two US cohorts**
M. Cortese (Boston, US)
- P1122 Aggressive form of multiple sclerosis can be predicted early after disease onset**
C.B. Malpas (Melbourne, AU)
- P1123 Ageing with MS: a cross sectional study**
D. Michelis (Genova, IT)

Scientific Programme

- P1124** **Fatigue, sleep disorders, anaemia and pain in the five years preceding the first demyelinating event or onset of multiple sclerosis**
F. Yusuf (Vancouver, CA)
- P1125** **Comparing DMT and non-DMT adherence in a population-based multiple sclerosis cohort**
C. Evans (Saskatoon, CA)
- P1126** **Epidemiology of multiple sclerosis and neuromyelitis optica spectrum disorder in South Korea**
J.-H. Min (Seoul, KR)
- P1127** **Relationship between environment and genetic factors with MS risk in Spain**
P. Urbaneja-Romero (Málaga, ES)
- P1128** **Description of the living population with multiple sclerosis in the Danish Multiple Sclerosis Registry**
M. Magyari (Copenhagen, DK)
- P1129** **Multiple Sclerosis and awareness In Turkey**
S. Demir (Istanbul, TR)
- P1130** **Temporal trends in the diagnosis of neuromyelitis optica spectrum disorder in US claims databases from 2001-2017**
C. Costantino (Basel, CH)
- P1131** **The North American Registry for Care and Research in Multiple Sclerosis**
K. Rammohan (Miami, US)
- P1132** **Who are we missing? Barriers to recruitment and participation in MS physical rehabilitation research**
R. Pretty (St. John's, CA)
- P1133** **Positive history of diseases and risk factors in neuromyelitis optica spectrum disorder: a case-control study**
S. Eskandarieh (Tehran, IR)
- P1134** **Economic sanctions threaten MS patient's health in Iran**
S. Eskandarieh (Tehran, IR)
- P1135** **Hormonal and delivery risk factors among females in neuromyelitis optica spectrum disorder: case-control study**
S. Eskandarieh (Tehran, IR)
- P1136** **Multiple sclerosis clinic utilization is associated with reduced emergency department visits in Alberta**
J.I. Roberts (Calgary, CA)
- P1137** **Demographics and clinical characteristics of Neuromyelitis Optica and Neuromyelitis Optica Spectrum Disorder in Egypt: First retrospective longitudinal study in a tertiary referral centre**
N. Kishk (Cairo, EG)

Scientific Programme

- P1138 False fear from Influenza vaccine complications contributes to vaccine hesitancy and requires urgent attention in Multiple Sclerosis patients. A case-control study**
M. Quezada (Leon, MX)
- P1139 Clinical factors of conversion to progressive phase in relapsing-remitting multiple sclerosis patients within 11 years**
N. Derache (Caen Cedex 9, FR)
- P1140 Baseline and longitudinal sex differences in 2465 patients in the placebo arms of pivotal trials for MS (MSOAC)**
R. Bove (San Francisco, US)
- P1141 Early menopause or being nulligravid is associated with earlier evolution of progressive MS**
B. Zeydan (Rochester, US)
- P1142 Gender differences in Social Cognition and traditional cognitive performance of patients with Multiple Sclerosis**
E. Ciampi (Santiago, CL)
- P1143 Age at menarche and risk of Multiple Sclerosis (MS): a systematic review and meta-analysis**
M. Ghajarzadeh (Tehran, IR)
- P1144 Prevalence of infant outcomes at birth after exposure to interferon beta prior to or during pregnancy: A register-based cohort study in Finland and Sweden among women with MS**
S. Montgomery (Stockholm, SE)
- P1145 Pregnancy related and perinatal outcomes among Danish women with multiple sclerosis. A nationwide population-based registry study**
J. Balslev Andersen (Copenhagen, DK)
- P1146 Pregnancy outcomes in female partners of male patients treated with teriflunomide or leflunomide (an in vivo precursor of teriflunomide)**
S. Vukusic (Lyon, FR)
- P1147 An International Registry Tracking Pregnancy Outcomes in Women Treated with Dimethyl Fumarate**
K. Hellwig (Bochum, DE)
- P1148 Pregnancy outcomes in patients treated with leflunomide, an in vivo precursor of the multiple sclerosis drug teriflunomide**
L.J. Henson (Seattle, US)
- P1149 Cytokine profile during pregnancy predicts puerperium relapses in multiple sclerosis: a prospective cohort study**
J.P. Cuello (Madrid, ES)
- P1150 Assisted Reproductive Technologies and the Risk of Peripartum Relapses: Interim Data from PREG-MS Cohort**
M.C. Manieri (Boston, US)
- P1151 Family planning decision making in people with multiple sclerosis**
L. Lavorgna (Naples, IT)

Scientific Programme

- P1152 First line injectable disease-modifying drugs, received in utero, and multiple sclerosis mother's infants**
D. Kasatkin (Yaroslavl, RU)
- P1153 A systematic review of morbidities and symptoms prior to the onset or diagnosis of multiple sclerosis**
F. Yusuf (Vancouver, CA)
- P1154 The evaluation of pain and pain management in patients with multiple sclerosis attending specialist neurology clinic in St George's Hospital, London**
V. Wallace (London, UK)
- P1155 Cognitive relapses in multiple sclerosis. Clinical-radiological approach to their diagnosis and management**
J.E. Meca-Lallana (Murcia, ES)
- P1156 eSupport: A feasibility RCT of internet-based support group participation to reduce loneliness in persons with multiple sclerosis**
V. Leavitt (New York, US)
- P1157 Fatigue in teriflunomide-treated patients with relapsing remitting multiple sclerosis in the real-world Teri-FAST Study**
J. de Seze (Strasbourg, FR)
- P1158 Depression and Fatigue in Patients with Clinically Definite Multiple Sclerosis: Results from the Pacific Northwest Multiple Sclerosis Registry**
E. Lucassen (Portland, US)
- P1159 Predictors of longitudinal change in a technology enabled version of the 9-Hole PEG Test**
M. McGinley (Cleveland, US)
- P1160 High-resolution 3D Myelin Imaging using Synthetic MRI**
M. Warntjes (Linköping, SE)
- P1161 Multiple Sclerosis Management and EDSS: A Great Start, But A Reason For Change Was Never So Apparent and Needed**
M. Gudesblatt (Patchogue, US)
- P1162 Social Network Structure is Associated with Physical Function and Disability Severity in Adults with Multiple Sclerosis**
S. Levin (New York, US)
- P1163 Quality of Life Correlates of A Technology Enabled Adaptation of The 9-Hole Peg Test**
D. Ontaneda (Cleveland, US)
- P1164 Assessing gait impairment at the early stages of multiple sclerosis - first results of Dresden cohort study**
M.L. Weidemann (Dresden, DE)
- P1165 Multiple Sclerosis and Disease Monitoring: The Association of Multi-dimensional Quantitative MRI Brain Volumes and Computerized Cognitive Scores of People with Multiple Sclerosis**
D. Golan (Haifa, IL)

Scientific Programme

- P1166 Multiple Sclerosis and Walking - Is Patient Perception Alone Sufficient To Appreciate The Varied Impacts of Disease on Real World Walking: The Cognitive Elephant Walks in the Room**
J. Srinivasan (Patchogue, US)
- P1167 Enhancing Multiple Sclerosis Management: Investigation into the Relationship between Visual Evoked Potential Latency and Digital MRI Measurements**
J. Srinivasan (Patchogue, US)
- P1168 Multiple Sclerosis, Accumulated Cognitive Impairment and Patient Perception: Perception Travels with Reality**
J. Srinivasan (Patchogue, US)
- P1169 Comparison of the cognition tests BRB and BICAMS in multiple sclerosis patients and their correlation with serum NFL titres and MRI volumetric parameters**
J. Hackert (Essen, DE)
- P1170 Baseline cognitive functioning using the Brief International Cognitive Assessment for MS tests in patients with relapsing-remitting multiple sclerosis enrolled in Phase IIIb studies of ocrelizumab (ENSEMBLE and CASTING)**
R.H. Benedict (Buffalo, US)
- P1171 Predictors of long term disability progression in patients with relapsing remitting multiple sclerosis in a cohort of patients from the Andean Region of Ecuador**
C. Jácome Sánchez (Quito, EC)
- P1172 Lower Urinary Tract Dysfunction in Patients with Multiple Sclerosis: a post-void-residual analysis of 509 cases**
M. Monti Bragadin (Genoa, IT)
- P1173 Fatigue and motivation in secondary progressive multiple sclerosis**
A. Tacchino (Genoa, IT)
- P1174 Body composition and relation to age in patients with multiple sclerosis**
J. Lautrup Frederiksen (Copenhagen, DK)
- P1175 Assessment of care burden and quality of life among the caregivers of patients with multiple sclerosis**
H. Shehata (Cairo, EG)
- P1176 Lower HRQoL Among Children with MS Compared to Monophasic Acquired Demyelinating Syndromes Explained by Parental HRQoL and Comorbidities**
J. O'Mahony (Toronto, CA)
- P1177 Patient-physician agreement on the incidence of relapses within a clinical practice setting in Germany**
D. Schriefer (Dresden, DE)
- P1178 Determinants of Multiple Sclerosis Impact Scale in patients with Multiple Sclerosis**
E. Ciampi (Santiago, CL)

Scientific Programme

- P1179** **Is the Swedish Checklist Individual Strength a valid and responsive measure of fatigue?**
S. Wessberg (Stockholm, SE)
- P1180** **Alemtuzumab improves disability and quality of life outcomes over 8 years in patients with RRMS**
H. Wiendl (Münster, DE)
- P1181** **Disruption of a Potential Emotional Salience Network is Associated with Lower Depression in Multiple Sclerosis**
T. Fuchs (Buffalo, US)
- P1182** **Improved treatment satisfaction with alemtuzumab in clinical practice: treatment sequencing results in RRMS patients from a prospective, non-interventional, real-world survey of patient-reported outcomes (PROMIS)**
B.O. Khatri (Milwaukee, US)
- P1183** **The influence of stigmatization and sense of coherence on the quality of life in patients with MS**
M. Grothe (Greifswald, DE)
- P1184** **The Impact an MS patient-centered specialty practice has on patient-reported outcomes related to their care team experience**
C. Geremakis (Weston, US)
- P1185** **Disability and cost of illness trajectories among people with MS initiating early vs late with disease modifying MS therapies: a register-based study in Sweden**
K. Karampampa (Stockholm, SE)
- P1186** **Measuring work productivity loss in multiple sclerosis using the valuation of lost productivity (VOLP) questionnaire**
C. Hategeka (Vancouver, CA)
- P1187** **Medication use and relapse rates in RRMS patients in the United States treated with the first course of alemtuzumab**
M. Frazer (Eden Prairie, US)
- P1188** **Disability, burden and societal cost in people with MS in Australia**
J. Lechner-Scott (Newcastle, AU)
- P1189** **Objective Smartphone Vision Tests to Characterize Visual Function in Multiple Sclerosis Patients with and without Optic Neuritis**
K. Zarei (Iowa City, US)
- P1190** **CORRELATION OF CORPUS CALLOSUM INDEX AND OPTIC COHERENCE TOMOGRAPHY FINDINGS IN MS PATIENTS WITH OR WITHOUT OPTIC NERVE INVOLVEMENT**
R. Sayin (Ankara, TR)
- P1191** **Optic Neuropathy due to Tacrolimus**
B. Osborne (Washington, US)
- P1192** **Is Obesity Linked to Cognitive Impairment in Multiple Sclerosis? Results of a Large Scale Multi-Center Study**
S. Rao (Cleveland, US)

Scientific Programme

- P1193** **Insomnia is prevalent and linked to worse white matter disease in early MS**
J. Sumowski (New York, US)
- P1194** **Burden of comorbid diseases among MS patients in Sweden**
K.A. Smith (Stockholm, SE)
- P1195** **Comorbidities in multiple sclerosis in Argentina: baseline data from the Argentinean MS Registry (RelevarEM)**
M. Alonso Serena (Buenos Aires, AR)
- P1196** **Investigating the association between multiple sclerosis and rheumatoid arthritis: evidence from the EnvIMS study**
M. Pugliatti (Ferrara, IT)
- P1197** **Comorbidities in multiple sclerosis patients in a Greek tertiary MS Center**
I. Nikolaidis (Thessaloniki, GR)
- P1198** **Understanding psychiatric comorbidity in multiple sclerosis using genomics**
K. Kowalec (Winnipeg, CA)
- P1199** **Long-term clinical, neuroimaging and cognitive outcomes in three immunopathologically classified patterns of Multiple Sclerosis**
A. Kalinowska-Lyszczarz (Rochester, US)
- P1200** **Disturbed axon-myelin interaction in MS normal appearing white matter**
A. Luchicchi (Amsterdam, NL)
- P1201** **Dominant B cell infiltration in tumefactive anti-myelin oligodendrocyte glycoprotein antibody-associated disease**
N. Kanda (Tokyo, JP)
- P1202** **Complex clinical, imaging, cognitive and self-reported outcomes measures re-evaluation of the original ASA and SET cohorts after 19 and 10 years of follow-up**
L. Friedová (Prague 2, CZ)
- P1203** **Absence of miR-146a alters the function and proteome of microglia**
K.H. Hyrlov (Odense, DK)
- P1204** **Modeling immune cell trafficking by employing human in vitro brain barrier models**
H. Nishihara (Bern, CH)
- P1205** **Influence of the coagulation system on the blood-brain barrier permeability in experimental autoimmune encephalomyelitis**
R. Brunkhorst (Frankfurt, DE)
- P1206** **The role of connexin 32-mediated hyperexcitability in a model of experimental autoimmune encephalomyelitis**
M. Cerina (Münster, DE)

Scientific Programme

- P1207** **Evaluation of the optimal anti-CD20 treatment strategy for long-term B-cell depletion in mice**
C. Hecker (Düsseldorf, DE)
- P1208** **Increased expression of Klotho occurs without changes in CYP27B1 and 1, 25 dihydroxyvitamin D₃ levels in the spinal cord of mice with experimental autoimmune encephalomyelitis**
M.S. Emami Aleagha (Tehran, IR)
- P1210** **An evolving story of three loci and natural killer cells - Genetic associations of HLA, NKC, and LRC with MS revealed by penalised regression analysis**
S. Burnard (Newcastle, AU)
- P1211** **A circulating miRNA signature as a potential prognostic biomarker in RIS patients**
E. Quintana (Salt, ES)
- P1212** **Differential expression of miRNAs between active and not active primary progressive MS patients**
M. Muñoz-San Martín (Salt, ES)
- P1213** **Mitochondrial DNA mutations in Multiple Sclerosis - untangling genotype, immunometabolism and disease activity**
F. Cortes-Figueiredo (Lisbon, PT)
- P1214** **Whole-genome epigenomic approach in multiplex families with Multiple Sclerosis revealed new epigenetic traits involved in the disease**
F. Martinelli-Boneschi (Milano, IT)
- P1215** **Familial Multiple Sclerosis: retrospective study in a tertiary Portuguese center**
V. Oliveira (Porto, PT)
- P1216** **The influence of the Brain-Derived Neurotrophic Factor Val66Met-polymorphism on disability levels and brain volumes in Multiple Sclerosis.**
E. Prestipino (Florence, IT)
- P1217** **Immunophenotyping identifies a subgroup of MS patients that experiences pro-inflammatory immune cell activation upon B cell-depleting therapy**
S. Häusser-Kinzel (Göttingen, DE)
- P1218** **Peripheral correlates of intrathecal inflammation in early multiple sclerosis**
R. Magliozzi (Verona, IT)
- P1219** **T cell receptor repertoire in a monozygotic triplet discordant for multiple sclerosis**
N. Isobe (Fukuoka City, JP)
- P1220** **CD8⁺ T cell-mediated endotheliopathy is a targetable mechanism of neuroinflammation in Susac syndrome**
R. Liblau (Toulouse, FR)

Scientific Programme

- P1221 Quantitative proteomic analyses of CD4+ and CD8+ T cells reveal differentially expressed proteins in multiple sclerosis patients and healthy controls**
T. Berge (Oslo, NO)
- P1222 T cell response to myelin oligodendrocyte glycoprotein (MOG) in patients with anti-MOG antibody**
H. Ono (Sendai, JP)
- P1223 Exploring T cell - B cell collaboration in Multiple Sclerosis through B cell differentiation analysis**
J. Morille (Nantes, FR)
- P1224 Deficient response to cell death stimuli in peripheral neutrophils from AQP4-IgG-seropositive NMO patients**
M. Schroeder-Castagno (Berlin, DE)
- P1225 In depth analysis of B cells in multiple sclerosis patients after treatment with cladribine**
F. Marsh-Wakefield (Sydney, AU)
- P1226 Transcriptomic and immunophenotypic analyses on natural killer cells in RRMS patients under fingolimod therapy**
A. Tuncer (Ankara, TR)
- P1227 Mitochondrial alterations in PBMCs of Multiple Sclerosis patients**
L. Nogueras (Lleida, ES)
- P1228 Increased serum IL-36 β and IL-36 γ levels in patients with neuromyelitis optica spectrum disorders: Association with disease activity**
C.-S. Yang (Tianjin, CN)
- P1229 Effect of dimethyl fumarate on gut microbiota in patients with relapsing remitting multiple sclerosis: a prospective longitudinal pilot study**
C. Ferri (Ferrara, IT)
- P1230 MicroRNAs of HHV6 in serum and cerebrospinal fluid of multiple sclerosis patients**
M. Dominguez-Mozo (Madrid, ES)
- P1231 Gut microbiota as a new predictive factor of prognosis in relapsing-remitting multiple sclerosis**
M.Á. Méndez Miralles (Alicante, ES)
- P1232 Pilot study of intrathecal immunoreactivity in healthy people with or without previous infectious mononucleosis**
D. Jons (Göteborg, SE)
- P1233 The relationship between Mediterranean diet and MS in Italy: beyond food regimen**
S. Ruggieri (Rome, IT)
- P1234 Dietary factors are associated with MRI metrics in multiple sclerosis**
I. Katz Sand (New York, US)

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- P1235** **Moderate alcohol diet leads to sex-specific disease amelioration in a mouse model of multiple sclerosis via effects on the Gut-CNS Axis**
E. Melamed (Austin, US)
- P1236** **Role of Cellular Adhesion Molecules (CAMs) in oligodendrocytes - CD4 T cells interaction**
H. Jamann (Montreal, CA)
- P1237** **Establishing of an in vitro high-throughput myelinating oligodendrocyte culture system on nanofibers to independently monitor effects on proliferation, differentiation and myelination**
N. Schaeren-Wiemers (Basel, CH)
- P1238** **Evaluation of the role of astrocytes in neurotoxicity in patients with multiple sclerosis**
C. Matute (Barcelona, ES)
- P1239** **Mitochondrial activity in multiple sclerosis patients**
R. Shahien (Zefat, IL)
- P1240** **Cerebrospinal fluid levels of parvalbumin predict cortical demyelination and atrophy in multiple sclerosis**
R. Magliozzi (Verona, IT)
- P1241** **Thalamic atrophy and its substrates in multiple sclerosis by ultra high field MRI**
A. Mehndiratta (Boston, US)
- P1242** **Single-cell genomics reveals neuron subtype vulnerability in multiple sclerosis**
L. Schirmer (Mannheim, DE)
- P1243** **Age of onset of progressive motor impairment in patients with critical demyelinating lesions**
R.M. Kassa (Rochester, US)
- P1244** **Peripapillary retinal nerve fibre layer correlates better with spinal cord volume than with brain parenchymal fraction in multiple sclerosis**
A. Barreiro-González (Valencia, ES)
- P1245** **Impaired remyelination in mixed active/inactive Multiple Sclerosis lesions**
K. Heß (Münster, DE)
- P1246** **Enhancing CNS remyelination by means of haematopoietic stem cell transplantation and gene therapy**
V. Tepavcevic (Paris, FR)
- P1247** **Bruton's tyrosine kinase (BTK) inhibition promotes myelin repair in two different models of demyelination**
M.S. Aigrot (Paris, FR)
- P1248** **Effects of high dose Pharmaceutical grade Biotin (MD1003), on survival, ensheathment, and ATP production by oligodendrocyte lineage cells in vitro**
Q.-L. Cui (Montreal, CA)

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- P1249 Fatty acid desaturation impairs the reparative features of phagocytes in the central nervous system**
J.J. Hendriks (Hasselt, BE)
- P1250 Ephrins expression levels are elevated on immune cells of relapsing Remitting Multiple Sclerosis patients**
M. Golan (Tel Aviv, IL)
- P1251 Susceptibility Weighted Imaging in Relapsing-Remitting Multiple Sclerosis: an exploratory study comparing the detection of iron rims using two different 3T MRI pulse sequences**
F. Crescenzo (Verona, IT)
- P1252 Thalamic volume as a measure to discriminate between subjective and objective cognitive complaints in MS: towards clinical application?**
M. Huiskamp (Amsterdam, NL)
- P1253 Prediction of a second clinical event in CIS patients by combining lesion and brain features**
D. Pareto (Barcelona, ES)
- P1254 Default Network Index: A novel candidate biomarker of memory decline in multiple sclerosis**
V. Leavitt (New York, US)
- P1255 The relevance of 7-Tesla paramagnetic rim lesions in patients with multiple sclerosis**
C. Treaba (Boston, US)
- P1256 BIANCA for an automatic detection of Multiple Sclerosis lesions using machine learning**
G. Gentile (Florence, IT)
- P1257 Characterization of outer and inner spinal cord pathology in multiple sclerosis by 7 Tesla imaging**
R. Ouellette (Boston, US)
- P1258 Axonal and Myelin Injury in White Matter and Cortex of Relapsing-Remitting and Progressive Multiple Sclerosis Patients: A Combined Myelin Water and Multi-Shell Diffusion MRI study**
R. Rahmanzadeh (Basel, CH)
- P1259 Axonal Damage Explains Part of and Extends Beyond the Diffuse Pathology Evidenced by T1 Mapping in Normal-Appearing White Matter of Multiple Sclerosis Patients**
R. Rahmanzadeh (Basel, CH)
- P1260 Association of the Central Vein Sign and 'Paramagnetic Rims' with Cognitive Impairment in Radiologically Isolated Syndrome**
J. Oh (Toronto, CA)
- P1261 Cognitive reserve mediates the association between cognition and white matter microstructural damage in early MS**
C. Vinciguerra (Siena, IT)

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- P1262** **Cortical demyelination detection using MRI in post-mortem brains**
K. Nakamura (Cleveland, US)
- P1263** **Effect of Gadolinium-based Contrast Agent on MRI Signal and Clinical Measures in MS**
K. Nakamura (Cleveland, US)
- P1264** **A clinical decision system based on resting state fMRI-derived features to predict the conversion of CIS to RRMS**
G. Castellazzi (London, UK)
- P1265** **Improved cervical cord lesion detection in patients with Multiple Sclerosis using 3D MP2RAGE sequence**
S. Demortiere (Marseille, FR)
- P1266** **Myelin water imaging detects late remyelination in chronic MS lesions: A post-mortem validation study**
V. Wiggermann (Vancouver, CA)
- P1267** **Spinal cord grey matter area and myelin water fraction are related to disability**
I. Vavasour (Vancouver, CA)
- P1268** **Thalamus atrophy progresses faster in subjects with early MS who have more damage in the connected white matter and who show increasing disability over time**
M.M. Weeda (Amsterdam, NL)
- P1269** **Classification of multiple sclerosis patients based on patterns of volume loss in the CNS**
C. Tsagkas (Basel, CH)
- P1270** **Measuring Neurodegeneration in Multiple Sclerosis with Automatic Segmentations of Corpus Callosum based on Deep Learning**
M. Platten (Stockholm, SE)
- P1271** **Improved automated thalamic segmentation using multiple MRI contrasts and machine learning in multiple sclerosis**
K.A. Brewer (Charlestown, US)
- P1272** **Leptomeningeal Gadolinium Enhancement in Multiple Sclerosis**
F. Gascon-Gimenez (Valencia, ES)
- P1273** **MRI-based brain volumetry as a biomarker for clinical outcomes in multiple sclerosis**
T. Moridi (Stockholm, SE)
- P1274** **The role of disconnection in explaining disability in Multiple Sclerosis**
C. Lapucci (Genoa, IT)
- P1275** **Evaluation of the 'ring sign' and the 'core sign' as a marker of disease activity and progression in clinically isolated syndrome and early multiple sclerosis**
N. Blindenbacher* (Basel, CH)

Scientific Programme

- P1276** **Imaging g-ratio in multiple sclerosis using high-gradient diffusion MRI and macromolecular tissue volume**
E. Klawiter (Boston, US)
- P1277** **Applying Machine Learning to Multimodal Neuroimaging Data to Classify Multiple Sclerosis Patients with and without Processing Speed Impairment**
K. Buyukturkoglu (New York, US)
- P1278** **MRI characteristics of internuclear ophthalmoplegia in patients with MS or ischemic stroke**
A. Gass (Mannheim, DE)
- P1279** **Folate receptor-targeted positron emission tomography of experimental autoimmune encephalomyelitis in rats**
P. Elo (Turku, FI)
- P1280** **Minimum Clinically Important Difference for Brain Atrophy Measures in Multiple Sclerosis**
C. Azevedo (Los Angeles, US)
- P1281** **Shape Changes of Deep Gray Matter Structures in Multiple Sclerosis: a longitudinal study on disability progression**
E. Geiter (Basel, CH)
- P1282** **A deep learning approach for multiple sclerosis T₂ lesion-inpainting using non-local partial convolutions**
C. Wang (Sydney, AU)
- P1283** **7T Arterial Spin Labeling MRI in Multiple Sclerosis: Comparison with Dynamic Susceptibility Contrast**
Y. Falah (Nottingham, UK)
- P1284** **Astrocytic metabolism in the patients with multiple sclerosis investigated by 1-C-11 acetate PET**
T. Okuno (Suita, Osaka, JP)
- P1285** **New or enlarging T2 weighted lesions in the white matter near to the ventricle wall and thalamic atrophy are independently associated with lateral ventricular enlargement in multiple sclerosis**
T. Sinnecker (Basel, CH)
- P1286** **Sustained fatigue is associated with caudate, putamen and thalamus damage in patients with multiple sclerosis**
M. Palotai (Boston, US)
- P1288** **The impact of leptomeningeal enhancement on disability progression and brain atrophy in a 2-year prospective study**
G. Makshakov (Saint-Petersburg, RU)
- P1289** **Resting state fMRI of the cerebellar lobes in patients with Multiple Sclerosis: a seed-based analysis**
G. Pasqua (Campobasso, IT)

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- P1290** **Thalamic Energy Dysregulation Is Associated With Microstructural Changes Of Thalamo-Cortical Projections In Multiple Sclerosis**
V.A.G. Ricigliano (Paris, FR)
- P1291** **Effects of a single cortical lesion on functional activation in the primary somatosensory cortex - a case study**
M.A.J. Madsen (Copenhagen, DK)
- P1292** **Role of double inversion recovery in comparison to conventional magnetic resonance imaging in detection of brain and spinal cord MS lesions and its association with disease disability**
W. Mustafa (Mansoura, Dakahliya, EG)
- P1293** **Deep grey matter iron content in neuromyelitis optica and multiple sclerosis**
A. Burgetova (Prague, CZ)
- P1294** **Dynamic PET with 11C- and 18F- tracers for measuring cerebrospinal fluid alterations in multiple sclerosis**
J.J. Schubert (London, UK)
- P1295** **Optimal definition of spinal cord segment for measurement of Cervical Spinal Cord Area**
L. Bracoud (Lyon, FR)
- P1296** **Atrophied T2 lesion volume development in MS: association between regional distribution and disease progression**
N. Bergsland (Buffalo, US)
- P1297** **Optimized automated lesion segmentation method for Multiple Sclerosis: validation and comparison with state-of-the-art methods on a 3D-FLAIR public dataset with multi-rater consensus**
P. Tran (Paris, FR)
- P1298** **Comparison of cerebral connectivity by functional magnetic resonance imaging and cognitive aspects between patients with relapsing-remitting multiple sclerosis and healthy controls**
R.B. Thomaz (São Paulo, BR)
- P1299** **QUANTUM - Quantitative and standardised imaging in daily clinical routine of patients with Multiple Sclerosis (MS)**
S. Schippling (Zurich, CH)
- P1300** **An international retrospective multi-center study of retinal optical coherence tomography in neuromyelitis optica spectrum disorders: The CROCTINO study**
F.C. Oertel (Berlin, DE)
- P1301** **The effect of optic neuritis in Multiple Sclerosis, Aquaporin4-positive Neuromyelitis Optica Spectrum Disorders, and anti-MOG antibodies associated-disease**
A. Bianchi (London, UK)
- P1302** **Disease inflammation might influence OCT dynamics over time: analysing the pseudoatrophy effect on OCT measures**
A. Vidal-Jordana (Barcelona, ES)

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- P1303** **Retinal nerve fiber layer and ganglion cell thickness analysis using optical coherence tomography are not useful as predictors for cognitive impairment in MS**
S. Dreyer-Alster (Ramat Gan, IL)
- P1304** **Predictive value of optical coherence tomography, multifocal visual evoked potentials and full-field visual evoked potentials of the fellow, non-symptomatic for multiple sclerosis development in patients with acute optic neuritis**
G. Pihl-Jensen (Copenhagen, DK)
- P1305** **Long term changes in retinal oxygen saturation and optic coherence tomography during optic neuritis**
T. Svrcinova (Olomouc, CZ)
- P1306** **Determinants of cognitive screening tests for MS patients**
S. Grahl (Munich, DE)
- P1307** **Real-life Objective Measure of cognitive Impairment (ROMI) index to unveil worse cognitive functioning in 'cognitively normal' MS patients: a preliminary investigation grounded on cortical thinning**
S. Ziccardi (Verona, IT)
- P1308** **Driving ability in MS patients in relation to behavioral and cognitive deficits**
E. Kannamüller (Dillingen, DE)
- P1309** **Validation of a new cognitive stress test for the study of memory in Multiple Sclerosis**
P. Montero-Escribano (Madrid, ES)
- P1310** **Neural responses to psychological stress predict the future course of quality of life and neuropsychiatric symptoms in multiple sclerosis patients**
L. Meyer-Arndt (Berlin, DE)
- P1311** **Validity and reliability of 'Cognitive Reserve Index Questionnaire' in Turkish**
P. Yigit (Izmir, TR)
- P1312** **The difference between cognitive function among multiple sclerosis patients, Neuromyelitis optica spectrum disorder patients and control group**
N. Rezaeimanesh (Tehran, IR)
- P1313** **The Role of Cognitive-motor interaction in MS patient's Quality of life**
M.B. Eizaguirre (Buenos Aires, AR)
- P1314** **The root cause of memory deficit in multiple sclerosis**
J. Salavedra Pont (Girona-Salt, ES)
- P1315** **Correlations between tissue damage and functional cortical activations during cognitive task in patients with relapsing-remitting MS**
D. Iancheva (Plovdiv, BG)

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- P1316 Verbal and visuospatial memory in pediatric-onset multiple sclerosis**
M. Bogdanova (Moscow, RU)
- P1317 Cognitive Function , Memory and Intelligence State in Neuromyelitis Optica Spectrum Disorder patients in Isfahan , Iran**
F. Ashtari (Isfahan, IR)
- P1318 Plasma interleukin-1 receptor antagonist (IL-1RA) correlates with EDSS and is a putative marker of transition to secondary progressive multiple sclerosis**
S.N. Blandford (St John's, CA)
- P1319 Accelerated brain ageing and disability in multiple sclerosis**
R. Nicholas (London, UK)
- P1320 Using ICA —an artificial intelligence (AI)-assisted technology— as a digital biomarker of MS disease progression and treatment efficacy**
S.-M. Khaligh-Razavi (London, UK)
- P1321 Translational potential and impact of relapses and therapeutic responses on serum neurofilament light chain levels in multiple sclerosis**
F. Steffen (Mainz, DE)
- P1322 Correlation of neurofilament light (NfL) chain levels with cognitive assessment in multiple sclerosis (MS)**
O. Aktas (Düsseldorf, DE)
- P1323 Compared CSF biomarker profile of AQP4-Ab, MOG-Ab and double seronegative NMOSD reveals specificities with potential therapeutic implications**
E. Thouvenot (Nîmes, FR)
- P1324 Classification of High Versus Low Annualized Relapse Rate Status in Subjects with Relapsing-Remitting Multiple Sclerosis Using Multivariate Serum Protein Biomarker Models**
N. Sattarnejhad (Boston, US)
- P1325 Genome-wide small-noncoding RNA analysis in patients with Multiple Sclerosis**
G. Zheleznyakova (Stockholm, SE)
- P1326 Pattern of regional cortical grey matter thickness and relationship to disability in RRMS patients treated with fingolimod**
M. Kakara (Detroit, US)
- P1327 Analysis of GFAP and NfL as serum biomarkers in a prospective cohort of patients with NMOSD**
P. Schindler (Berlin, DE)
- P1328 Baseline brain oxygen metabolism predicts fatigue in Multiple Sclerosis**
K. West (Dallas, US)
- P1329 Dissecting the role of epidermal growth factor-like protein 7 (EGFL7) in multiple sclerosis patients**
S. Malhotra (Barcelona, ES)

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- P1330** **Higher serum neurofilament light chain levels are associated with lower self-reported quality of life in the Swiss MS Registry and the Swiss MS Cohort-Study**
M. Kaufmann (Zurich, CH)
- P1331** **Increased erythrocyte microRNA-183 cluster expression during relapse - A potential new MS-specific marker for disease activity?**
K. Groen (Callaghan, AU)
- P1332** **Association of CSF osteopontin levels with HLA and disease phenotypes in multiple sclerosis**
P. Stridh (Stockholm, SE)
- P1333** **Multivariate Protein Biomarker Models More Accurately Predict Multiple Sclerosis MRI Disease Activity Compared to Serum Levels of Neurofilament Light Chain Alone**
T. Chitnis (Boston, US)
- P1334** **Do 7T observed iron rim lesions in patients with Multiple Sclerosis serve as a marker for neuropsychological deficits?**
A. Dal-Bianco (Vienna, AT)
- P1335** **Analysis of CSF markers to explore the crosstalk between B cells and glial cells during disease progression in multiple sclerosis**
A. Abdelhak (Tübingen, DE)
- P1336** **Dexterity impairment in progressive MS is related to intracortical motor conduction slowing**
M. Pisa (Milan, IT)
- P1337** **Anti-nuclear antibodies specific for central nervous system cell nuclei but not peripheral organ cell nuclei are associated with female sex, younger onset age and secondary progression in patients with multiple sclerosis**
T. Fujii (Fukuoka, JP)
- P1338** **Fluorescence activated vesicle sorting for isolation of extracellular vesicle subpopulations from individuals with multiple sclerosis**
R. Mizenko (Davis, US)
- P1339** **Neurofilament light chain levels in cerebrospinal fluid and serum of a longitudinal cohort of people with multiple sclerosis on disease modifying drugs**
M. Marta (London, UK)
- P1340** **Personalized extended interval dosing of natalizumab in multiple sclerosis: a prospective multicenter trial**
Z. van Kempen (Amsterdam, NL)
- P1341** **Transcriptional analysis of peripheral monocytes upon fingolimod treatment in Relapsing Remitting Multiple Sclerosis patients**
G. Sferruzza (Milano, IT)
- P1342** **Induction versus escalation in multiple sclerosis: a 10-year real-world study**
L. Prosperini (Rome, IT)

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- P1343** **Impact of eculizumab on disability measures in patients with aquaporin-4 antibody-positive neuromyelitis optica spectrum disorder: phase 3 PREVENT study**
J. Palace (Oxford, UK)
- P1344** **Long-term interleukin-6-receptor blockade in neuromyelitis optica spectrum disorder and MOG associated encephalomyelitis**
M. Ringelstein (Düsseldorf, DE)
- P1345** **Treatment of steroid-refractory relapses in MS and CIS: a randomized, controlled, monocentric study comparing efficacy and tolerability of two apheresis methods**
H. Tumani (Ulm, DE)
- P1346** **A phase 1 trial of BCD-132, a novel anti-CD20 monoclonal antibody, in patients with relapsing forms of multiple sclerosis**
A. Zinkina-Orikhan (St. Petersburg, RU)
- P1347** **High-dose vitamin D₃ supplementation in multiple sclerosis is not associated with lower circulating neurofilament light chain levels**
J. Smolders (Nijmegen, NL)
- P1348** **Natalizumab is associated with no evidence of disease activity and with improvement in disability and cognitive performance in anti-JC virus seronegative patients with early relapsing-relapsing multiple sclerosis: STRIVE 4-year results**
J. Perumal (New York, US)
- P1349** **Alemtuzumab treatment in Denmark: a national study based on the Danish MS Registry**
A. Theodorsdottir (Odense C, DK)
- P1350** **The effect of glatiramer acetate on granulocyte macrophage colony-stimulating factor (GM-CSF) expression in an animal model of multiple sclerosis**
R. Aharoni (Rehovot, IL)
- P1351** **Initial Multiple Sclerosis DMT Recommendation: Impact of Comorbidities and Prognostic Profile in the United States**
P.K. Coyle (Stony Brook, US)
- P1352** **Comparison of two individualized administration schemes of rituximab based on memory B cells monitoring in AQP4 positive disorder**
P. Durozard (Marseille, FR)
- P1353** **CD4⁺ T cells and CD19⁺ B cells respond differentially to cladribine treatment in vitro depending on their activation status. Role of deoxycytidine kinase**
A. Uccelli (Genoa, IT)
- P1354** **Are poor depleters worse off? Variation in total lymphocyte reduction following MS treatment with cladribine**
C. Cores (London, UK)

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- P1355 Dimethyl-fumarate for multiple sclerosis in real life: impact on cortical pathology**
C. Zuco (Verona, IT)
- P1356 Efficacy of subcutaneous interferon β -1a in patients with a first clinical demyelinating event: the REbif FLEXible dosing in early multiple sclerosis (REFLEX) study - outcomes in patients stratified by the 2017 McDonald criteria**
M.S. Freedman (Ottawa, CA)
- P1357 Ocrelizumab real-world safety and effectiveness in the one year treatment of multiple sclerosis compared to other disease modifying therapies**
E. Alvarez (Aurora, US)
- P1358 Effect of evobrutinib, a Bruton's tyrosine kinase inhibitor, on immune cell and immunoglobulin levels over 48 weeks in a phase 2 study in relapsing multiple sclerosis**
J. Shaw (Billerica, US)
- P1359 Dimethyl fumarate treatment alters T cell metabolism in multiple sclerosis**
M. Liebmann (Münster, DE)
- P1360 Natural killer cells during fingolimod therapy - results of an interventional prospective clinical trial**
S. Schwichtenberg (Berlin, DE)
- P1362 Targeted Antigen Delivery to the Liver Induces Antigen-Specific Immune Tolerance and Modulates Pathology in Preclinical Models of Autoimmunity**
S. Kontos (Cambridge, US)
- P1363 Rituximab in Multiple sclerosis: real world experience from three tertiary care MS centers from southern India**
T. Mathew (Bengaluru, IN)
- P1364 Real-Life Outcomes of Ocrelizumab Treatment from 3 Multiple Sclerosis Centers in Turkey**
E. Vural (Istanbul, TR)
- P1365 Cumulative DMT exposure influence on the immune system in patients under oral DMT**
F. Ladeira (Lisbon, PT)
- P1366 Synthesis and Preliminary Ex Vivo Testing of siRNA Targeting the T Cell Receptor β -Chain - A Proposed Therapy for the Treatment of Autoimmunity**
N. Magazine (Baton Rouge, US)
- P1367 Impact of Ocrelizumab-induced BAFF on early reappearing B cells in multiple sclerosis**
F. Luessi (Mainz, DE)

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- P1368 Dimethyl fumarate persistence-rates and reasons for discontinuation: a retrospective study based on real world data from Denmark and Switzerland**
M. Briner (Bern, CH)
- P1369 Efficacy of aHSCT and Alemtuzumab: A Case-Control Study in Hamburg MS-patients**
V. Häußler (Hamburg, DE)
- P1370 Treatment of Relapsing Remitting MS Patients with Aubagio (R) (Teriflunomide) Results in a Decline in CD8+ T and Enhanced Treg function**
Y. Mao-Draayer (Ann Arbor, US)
- P1371 Real-world data from the TACO (Teriflunomide in relapsing remitting multiple sclerosis patients assessing clinical benefit and patient-reported outcomes) study**
C. Gobbi (Lugano, CH)
- P1372 Clinical and imaging activity in a post-natalizumab real-world multiple sclerosis portuguese population**
M. Sequeira (Lisboa, PT)
- P1373 Neuroprotective effects of 4-Aminopyridine in experimental optic neuritis and optic nerve crush**
M. Dietrich (Düsseldorf, DE)
- P1374 High dose Pharmaceutical grade Biotin (MD1003) has no effect in a mouse model of experimental autoimmune encephalomyelitis**
D. Bernard (Paris, FR)
- P1375 Reversal of Disability MD1003 in not-active progressive MS real world experience: the French Grand-Est cohort**
A. Tourbah (Reims, FR)
- P1376 Siponimod (BAF312) is a Potent Promyelinating Agent: Preclinical Mechanistic Observations**
E. Martin (Paris, FR)
- P1377 RENEWED: Long-term electrophysiological and clinical outcomes in participants previously enrolled in the opicinumab phase 2 study RENEW**
O. Aktas (Düsseldorf, DE)
- P1378 MEsenchymal StEm cells for Multiple Sclerosis (MESEMS): a multi-center, randomized, double blind, cross-over phase 2 Clinical Trial with autologous Mesenchymal Stem Cells (MSC)**
A. Uccelli (Genoa, IT)
- P1379 Neuroprotective effects of temelimab in relapsing-remitting MS patients extend to 96 weeks**
H.-P. Hartung (Düsseldorf, DE)
- P1380 Teriflunomide protects central nervous system mitochondria during oxidative stress**
B. Malla (Berlin, DE)

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- P1381 Big Multiple Sclerosis Data - A registry basis for post authorization safety studies (PASS) for multiple sclerosis**
J. Hillert (Stockholm, SE)
- P1382 Impact of age on treatment decisions and adherence to therapy in patients with relapsing-remitting multiple sclerosis**
P.S. Sørensen (Copenhagen, DK)
- P1383 Improved clinical outcomes in patients treated with Natalizumab for at least 8 years - Real-world data from a Swedish national post-marketing surveillance study (IMSE 1)**
S. Kågstöm (Stockholm, SE)
- P1384 First Treatment Choices for Relapsing Remitting Multiple Sclerosis: the Italian Registry experience**
E. D'Amico (Catania, IT)
- P1385 SPANISH REGISTRY OF MULTIPLE SCLEROSIS PATIENTS ON GLATIRAMER ACETATE 40 MG/ML TREATMENT: REAL-WORLD RESULTS - INTERIM RESULTS OF SECOND YEAR FOLLOW-UP**
O. Fernandez-Fernandez (Malaga, ES)
- P1386 Effectiveness of Natalizumab on Multiple Sclerosis patients: the Italian Registry experience**
C. Chisari (Catania, IT)
- P1387 Association of immunoglobulin levels, risk of infections with use of Ocrelizumab in MS patients**
J. Cooper (Berkeley, US)
- P1388 Long-term effectiveness, safety and tolerability with fingolimod treatment in patients with multiple sclerosis in real-world treatment settings in France: final results of the VIRGILE study**
C. Papeix (Paris, FR)
- P1389 Phenotype of repleting B cells in Multiple Sclerosis patients treated with rituximab**
N. Nissimov (Göttingen, DE)
- P1390 Updated safety of cladribine tablets in the treatment of patients with multiple sclerosis: Integrated safety analysis and post-approval data**
S. Cook (Newark, US)
- P1391 Comparably low disease activity during natalizumab treatment in patients who remained on or who later discontinued natalizumab suggests limited attrition bias in the TYSABRI (R) Observational Program**
T. Spelman (Stockholm, SE)
- P1393 Pharmacodynamic biomarkers of interferon β -1a: Assessment in patients receiving long-term treatment with subcutaneous interferon β -1a in REFLEX and REFLEXION**
M.S. Freedman (Ottawa, CA)

Scientific Programme

- P1394** **Comparative Effectiveness of Delayed-release Dimethyl Fumarate vs. Other Disease-modifying Therapies in Patients with Multiple Sclerosis: A Network Meta-analysis of Real-world Evidence**
G. Cutter (Birmingham, US)
- P1395** **Long-term persistence and benefit-risk profile of dimethyl fumarate for MS patients in Central Italy: a real-world study**
M. Lucchini (Rome, IT)
- P1396** **Evolution of cognitive performance in relapsing remitting MS patients treated with dimethylfumarate - a two-year longitudinal study**
L. Lehr (Ulm, DE)
- P1397** **Overall Safety and Efficacy through 10 Years of Treatment with Delayed-release Dimethyl Fumarate in Patients with Relapsing-Remitting Multiple Sclerosis**
R. Gold (Bochum, DE)
- P1398** **Alemtuzumab as induction versus escalation therapy: efficacy and adverse events in the real-world**
E. Rigoni (Pavia, IT)
- P1399** **Effect of MD1003 (high dose Pharmaceutical grade Biotin) for the treatment of progressive MS: Long-term safety data at 60 months of follow-up**
J. de Seze (Strasbourg, FR)
- P1400** **The Multiple Sclerosis Data Alliance: a multi-stakeholder approach to scale-up health data research**
L. Peeters (Diepenbeek, BE)
- P1401** **Immunization and Multiple Sclerosis: Recommendations from the French Multiple Sclerosis Society**
C. Lebrun (Nice, FR)
- P1402** **Tolerability and Safety of Switching from Rituximab to Ocrelizumab: Evaluating Factors Associated with Infusion Related Reactions**
E. Alvarez (Aurora, US)
- P1403** **Clinical outcomes of relapsing-remitting multiple sclerosis patients following natalizumab-associated progressive multifocal leukoencephalopathy: data from the TYSABRI (R) Observational Program**
M. Trojano (Bari, IT)
- P1404** **Increased risk of an abnormal cervical screening tests in women with MS exposed to high-efficacy disease-modifying treatments**
A. Van der Walt (Melbourne, AU)
- P1405** **Iatrogenesis in multiple sclerosis: what is the therapeutic risk of our disease modifying therapies?**
T. West (Salt Lake City, US)
- P1406** **Safety results for administering ocrelizumab per a shorter infusion protocol in patients with primary progressive and relapsing multiple sclerosis**
J. Cohen (Cleveland, US)

Scientific Programme

- P1407 Exploring the safety and tolerability of conversion to siponimod in patients with relapsing forms of multiple sclerosis: design of the 6-month prospective EXCHANGE study**
A. Bar-Or (Philadelphia, US)
- P1408 Evaluation of shorter infusion times for ocrelizumab treatment in an extension substudy of the Phase IIIb CHORDS trial**
R. Bermel (Cleveland, US)
- P1409 Real-World Experience with Ocrelizumab**
D. Ontaneda (Cleveland, US)
- P1410 Myasthenia gravis presenting in pregnancy in a woman treated with Alemtuzumab**
K. Petheram (Sunderland, UK)
- P1411 Effect of teriflunomide in serum urate and phosphate in RMS patients**
J. Díaz-Díaz (Madrid, ES)
- P1412 Evaluation of JCV status, seroconversion rate and risk of progressive multifocal leukoencephalopathy in Polish patients with relapsing-remitting multiple sclerosis**
K. Kapica-Topczewska (Bialystok, PL)
- P1413 Extended interval dosing and reduced dose of natalizumab in a Portuguese population**
P. Marques (Coimbra, PT)
- P1414 Optimizing a Center's post-marketing experience with an infusible treatment: ocrelizumab for MS**
R. Bove (San Francisco, US)
- P1415 Disease control beyond NEDA: The value of non-clinical disease activity measures to determine treatment response to natalizumab**
P. Calabresi (Baltimore, US)
- P1416 Assessment and follow-up of the response to disease modifying treatments in Multiple Sclerosis: Spanish expert consensus**
J. Rio (Barcelona, ES)
- P1417 Effect of Interferon β -1a Treatment on Serum Neurofilament Light Chain Levels in Patients with a First Clinical Demyelinating Event in the REFLEX trial**
J. Kuhle (Basel, CH)
- P1418 Comparative effectiveness of natalizumab and fingolimod in different subgroups of patients with relapsing-remitting multiple sclerosis**
S. Sharmin (Melbourne, AU)
- P1419 Personalizing treatment effect based on patient's baseline profile: A statistical modelling approach applied to randomized clinical trial and observational study data**
F. Bovis (Genoa, IT)

Scientific Programme

- P1420** **Assessing the duration of EDSS improvement after a therapy start: a new statistical approach applied to the long term extension of the PRISMS study**
A. Signori (Genoa, IT)
- P1421** **Modifiers of the effectiveness of MS immunotherapies**
T. Kalincik (Melbourne, AU)
- P1422** **Prognostic parameters of medium-term response to fingolimod treatment in Relapsing Remitting Multiple Sclerosis patients**
L. Ferrè (Milan, IT)
- P1423** **Higher Sensitivity of Quantitative Reverse Transcriptase Polymerase Chain Reaction Compared to Flow Cytometry for Quantification of B cells after Anti-CD20 Monoclonal Antibody Therapy**
I. Touil Allaoui (Basel, CH)
- P1424** **Phase 3 randomized, controlled trial of methylphenidate, modafinil and amantadine for MS fatigue (TRIUMPHANT-MS): Baseline data**
B. Nourbakhsh (Baltimore, US)
- P1425** **Use and perceived benefit of complementary and alternative therapies for multiple sclerosis in the Western United States: a 17-year update**
E. Silbermann (Portland, US)
- P1426** **Non-pharmacological intervention trial for the management of neuropsychological deficits in patients with progressive multiple sclerosis**
S.J. Baetge (Düsseldorf, DE)
- P1427** **Use and impacts of cannabis for therapeutic purposes by patients with multiple sclerosis in France and Spain - Results from an online patient community**
T. Verjus (Paris, FR)
- P1428** **A real-world study of Alemtuzumab in a cohort of Italian patients**
F. Saccà (Napoli, IT)
- P1429** **Therapeutic plasma exchange in steroid refractory MS relapses. A retrospective multicenter cohort study**
S. Blechinger (Vienna, AT)
- P1430** **Computer Assisted Cognitive training improves neuropsychological functions and cognitive fatigue in patients with Secondary Progressive Multiple Sclerosis: A randomized controlled trial**
C. Bakirtzis (Thessaloniki, GR)
- P1432** **Gene expression profiles of proteins involved in Cladribine metabolism in peripheral blood of multiple sclerosis patients**
R. Mechelli (Rome, IT)
- P1433** **High-efficacy disease-modifying therapies despite clinical stability: the role of patients on treatment decisions (PERCEPTIONS-MS Study)**
G. Saposnik (Toronto, CA)

Scientific Programme

- P1434 Evaluation of a shared decision-making process in MS**
I. González-Suárez (Vigo, ES)
- P1435 Intravenous Transplantation of autologous Bone Marrow Derived Mesenchymal stromal cell (BM-MSCs) in Patients with Multiple Sclerosis, A Phase I/II, Double Blinded, Randomized, Cross Clinical Trial**
S.M. Nabavi (Tehran, IR)
- P1436 Frequency and pitfalls of the use of vitamins and dietary supplements in MS patients**
K. Pape (Mainz, DE)
- P1437 Examining the relationship between Communicative Participation & psycho-social outcomes in adults with MS**
A. Flaster (Seattle, US)
- P1438 How gait abilities impact amount and intensity of physical activity in people with Multiple Sclerosis? A quantitative study**
M. Pau (Cagliari, IT)
- P1439 Memory retraining in MS: lessons from healthy aging, MCI and Alzheimer's disease**
P.M. Bouman (Amsterdam, NL)
- P1440 Improvements in balance control for multiple sclerosis patients with vibro-tactile biofeedback of trunk sway**
Ö. Yaldizli (Basel, CH)
- P1441 Use of cannabis based products in patients with progressive multiple sclerosis in South West Wales**
G. Ingram (Swansea, UK)
- P1442 Motor Skill Acquisition through Virtual Reality in People with Multiple Sclerosis: The Impact of Subjective and Objective Sleep Quality measures**
A. Al-Sharman (Irbid, JO)
- P1443 Cortical M1 plasticity and metaplasticity in patients with Multiple Sclerosis**
M. Tartaglia (Rome, IT)
- P1604 Inebilizumab prevents neuromyelitis optica spectrum disorder disability: outcomes from the N-MOMentum randomised, placebo-controlled, double-masked trial**
R. Marignier (Lyon, FR)
- P1605 Elevated levels of plasma neurofilament light at months 6 and 12 after fingolimod treatment initiation predict disability worsening in patients with relapsing-remitting multiple sclerosis**
J. Kuhle (Basel, CH)
- P1606 Chronic white matter lesion activity measured by MTR and DTI radial diffusivity in slowly expanding/evolving lesions**
C. Elliott (Montreal, CA)

Scientific Programme

- P1607 Italian experience of different regimen of Natalizumab treatment in Multiple Sclerosis patients**
S. Ruggieri (Rome, IT)
- P1608 High-intensity aerobic exercise does not improve cognitive performance in people with multiple sclerosis: a randomised controlled trial**
M. Langeskov-Christensen (Aarhus, DK)
- P1609 Elevated serum glial fibrillary acidic protein (sGFAP) is associated with increased risk of neuromyelitis optica spectrum disorder attacks in the N-MOMentum randomised, masked, placebo-controlled clinical trial of inebilizumab**
O. Aktas (Düsseldorf, DE)
- P1610 Adverse events with fatal outcome associated with alemtuzumab treatment in multiple sclerosis in Europe**
T. Holmøy (Lørenskog, NO)
- P1611 Impacts of Citrulline Malate supplementation on the fatigue in Multiple Sclerosis**
N. Maroufi (Zanjan, IR)
- P1612 RNS60, an Innovative Treatment for Patients with Clinically Isolated Syndrome and Relapsing Remitting Multiple Sclerosis - Results of a Phase IIa Clinical Trial**
A. Lutterotti (Zurich, CH)
- P1613 Leptin levels are associated with multiple sclerosis risk**
M. Biström (Umeå, SE)
- P1614 Efficacy and safety of satralizumab for relapse prevention in neuromyelitis optica spectrum disorder: a pooled analysis from two Phase 3 clinical trials**
J. de Seze (Strasbourg, FR)
- P1615 Safety and efficacy of autologous hematopoietic stem cell transplantation for multiple sclerosis in Norway**
Ø. Torkildsen (Bergen, NO)
- P1616 Deep learning of baseline brain lesion masks better predicts SPMS progression than baseline clinical, demographic and MRI measures**
M. Law (Vancouver, CA)
- P1617 Identification of functionally relevant genetic variants associated with multiple sclerosis using deep learning**
T.F.M. Andlauer (Munich, DE)
- P1618 The influence of rituximab on immunoglobulin blood levels in patients with neuroinflammatory diseases.**
A. Klein (Munich, DE)
- P1619 Design of an unbiased machine learning workflow to predict Multiple Sclerosis staging from blood transcriptome.**
C. Farina (Milan, IT)

Scientific Programme

- P1620 Therapeutic administration of the Salvinorin A analogue, EOM, enabled functional recovery and remyelination in two experimental models of multiple sclerosis.**
A. La Flamme (Wellington, NZ)
- P1621 Radiographic disease activity in patients on natalizumab extended interval dosing.**
L. Zhovtis Ryerson (New York, US)
- P1622 Efficacy of autologous Hematopoietic stem cell transplantation for MS. A single-centre report of 81 patients.**
C. Zhukovsky (Uppsala, SE)
- P1623 Disability assessment in the Google Maps era: a pilot study**
L. Lavorgna (Naples, IT)
- P1624 Emopamil binding protein inhibition as a remyelination therapy for Multiple Sclerosis**
C. Pedraza (Framingham, US)
- P1625 The imbalance between regulatory and memory B cells accompanied by increased number of circulating T-follicular helper cells in MOG-antibody-associated demyelination**
C. Quan (Shanghai, CN)
- P1626 Comparison of the effectiveness of rituximab versus alemtuzumab and natalizumab in active relapsing-remitting MS**
T. Kalincik (Melbourne, AU)
- P1627 Prospective analysis on total blood in natalizumab-treated patients: changes in effector-memory CD8+T cell but not CD4+CD62L+T cells correlate with high PML risk.**
A. Wahab (Créteil, FR)
- P1629 Functional connectivity changes associated with cognitive decline in multiple sclerosis are not caused by altered structural connectivity**
D. Jandric (Manchester, UK)
- P1630 Plasma Glial Fibrillary Acidic Protein correlates with characteristics of advanced disease and treatment response in secondary progressive multiple sclerosis**
J. Kuhle (Basel, CH)
- P1631 Targeted metabolomics of cerebrospinal fluid from multiple sclerosis patients using high-resolution mass spectrometry**
H. Carlsson (Uppsala, SE)
- P1632 Development of auto-immune thyroid dysfunction in Alemtuzumab treated multiple sclerosis patients is associated with better clinical outcome**
A. Sovetkina (London, UK)
- P1633 Next-generation sequencing identifies contribution of both class I and II HLA genes on susceptibility of multiple sclerosis in Japanese**
K. Ogawa (Suita, JP)

Scientific Programme

- P1634 Multiple sclerosis associated with increased activated CD4+CD25+Foxp3+T regulatory cells but reduced Th17 associated regulatory cells**
N.D. Verma (Liverpool, AU)
- P1635 The Association of Cardiovascular Disease and Ambulatory Disability is Driven by Hypertension in Hispanic-American Patients with Multiple Sclerosis**
M. Robers (Los Angeles, US)
- P1636 Disability Improvement Assessed by Multiple Sclerosis Functional Composite in Progressive MS Patients from the CLIMB Study**
T. Chitnis (Boston, US)
- P1637 IL-17 controls CNS autoimmunity through the intestinal microbiome**
T. Regen (Mainz, DE)
- P1638 Real-world safety, health, and patient-reported outcomes after teriflunomide 14 mg treatment initiation in patients with relapsing remitting multiple sclerosis: TERI-REAL study**
S. Menascu (Ramat Gan, IL)
- P1639 A two-year follow-up of focal and diffuse cervical spinal cord damage in early RRMS patients**
B. Combès (Rennes, FR)
- P1640 Multiple sclerosis lesions in motor tracts from the brain to the cervical cord: spatial distribution and correlation with functional deficits**
A. Kerbrat (Montréal, CA)
- P1641 Data comparison of hand function measurement between persistent and non-persistent multiple sclerosis patients**
T. Dagan (Ramat-Gan, IL)
- P1642 Quantitative Radiomic Biomarkers for Discrimination Between Neuromyelitis Optica Spectrum Disorder and Multiple Sclerosis**
D. Huang (Beijing, CN)
- P1643 Serum Neurofilament Levels in Long Term Rituximab Treated Multiple Sclerosis Patients: Are We Over or Under Treating?**
E. Alvarez (Aurora, US)
- P1644 Application of NMOSD 2015 revised diagnostic criteria in a large Italian cohort of incident anti-MOG and anti-AQP4 positive patients**
M. Capobianco (Orbassano, IT)
- P1645 Positive effects of a cognitive-motor dual task training compared to a single mobility training on dual task cost are independent of improvements in mobility or cognition.**
R. Veldkamp (Diepenbeek, BE)
- P1646 Cognitive trajectories in relapsing-remitting multiple sclerosis: a longitudinal six-year study**
A. Damasceno (Campinas, BR)

Scientific Programme

- P1647 Glatiramer Acetate Depot (Extended-Release) Phase IIa Study in Patients with Relapsing Remitting Multiple Sclerosis: Safety, Tolerability and Efficacy (No Evidence of Disease Activity) Subpopulation Three-Years Analysis**
S. Flechter (Zerifin, IL)
- P1648 Regulatory T cells modulate B cell calcium fluctuations**
C. Würthwein (Heidelberg, DE)
- P1649 Differential monocytic response patterns to MIS416 in vitro during progressive multiple sclerosis and the involvement of NF-κB.**
C. Beyers (Wellington, NZ)
- P1650 Event-driven immunoprofiling can identify disease reactivation in alemtuzumab-treated multiple sclerosis patients**
T. Ziemssen (Dresden, DE)
- P1651 SARM1 deletion protects axons in a model of inflammatory demyelination.**
R. Krauss (Cambridge, US)
- P1652 Sensitivity analyses of time to adjudicated attacks in the N-MOMentum study, a randomised, placebo-controlled, double-masked trial in patients with neuromyelitis optica spectrum disorder**
B.A. Cree (San Francisco, US)
- P1653 The clinical characteristics of oligodendrocyte glycoprotein antibody (MOG-ab) associated myelitis in a cohort of Chinese Han adults.**
J. ZhangBao (Shanghai, CN)
- P1654 Blocking PDGFR-α decreases multiple sclerosis-like neuroinflammation by inhibiting disruption of blood brain barrier integrity**
M. Zeitelhofer (Stockholm, SE)
- P1655 Dysfunctional RNA binding protein and stress granule biology contribute to neurodegeneration in MS and animal model of MS**
H. Salapa (Saskatoon, CA)
- P1656 Oleacein, an olive oil secoiridoid, prevents clinical and histological signs of experimental autoimmune encephalomyelitis through modulating immune-inflammatory responses and oxidative stress**
M. Nieto (Valladolid, ES)
- P1657 Preliminary safety and efficacy of ATA188, a pre-manufactured, unrelated donor (off-the-shelf, allogeneic) Epstein-Barr virus-targeted T-cell immunotherapy for patients with progressive forms of multiple sclerosis**
M. Pender (Brisbane, AU)
- P1658 Modulation of mouse microglia gene expression following fecal microbiome transfer from patients with relapsing and progressive MS**
A.H. Maghzi (Boston, US)
- P1659 Proteome profiling of multiple sclerosis cerebrospinal fluid by data-independent acquisition mass spectrometry reveals disease biomarkers**
V.G. Anania (South San Francisco, US)

Scientific Programme

- P1660** **Effect of Alemtuzumab (LEMTADA (R)) treatment on the peripheral immune repertoire in multiple sclerosis patients**
S. Barman (Düsseldorf, DE)
- P1661** **GABA_A receptor autoimmunity induced by Alemtuzumab treatment for MS: a case report**
G.T. Maniscalco (Naples, IT)
- P1662** **Patient-derived autoantibodies lead to activation and toxicity in cells of the central nervous system**
R. Mothes (Berlin, DE)
- P1663** **Retinal neuroprotective function of Siponimod in a mouse model of experimental glaucoma**
D. Basavarajappa (Sydney, AU)
- P1664** **Cladribine decreases CD95 expressing CD4+ and CD8+ cells in lymphoid organs in naïve marmosets (Callithrix jacchus)**
Y. Kap (Rijswijk, NL)
- P1665** **Collaborative study in deep learning for predicting disease activity in multiple sclerosis**
C. Chien (Berlin, DE)
- P1666** **The mediating effect of health-related hardiness on the degree of physical disability and perceived stress in Chinese female patients with neuromyelitis optica spectrum disorder**
Y. Xu (Shanghai, CN)
- P1667** **k Free Light Chains for Multiple Sclerosis diagnosis**
L. Agnello (Palermo, IT)
- P1668** **Simple MR planimetric measurements for diagnosis and outcome prediction of Multiple Sclerosis**
S. Mangesius (Innsbruck, AT)
- P1669** **Metabolomics associated with relapse rate and disability progression in Relapse Remitting Multiple Sclerosis patients**
D. Kitsos (Athens, GR)

13:00 - 14:00 Satellite Symposium, Hall A
Satellite Symposium 11: From pediatric MS to immunosenescence: an interactive discussion

Supported by Biogen

Chairs

D. Bates (Newcastle upon Tyne, UK)
J. Lycke (Gothenburg, SE)

13:00 - 13:05 **328** **Introduction**

D. Bates (Newcastle upon Tyne, UK)
J. Lycke (Gothenburg, SE)

Scientific Programme

13:05 - 13:50	329	Immunological insights and clinical considerations across the age-span of MS A. Bar-Or (Philadelphia, US) J. Oh (Toronto, CA)
13:50 - 13:55	330	Q&A J. Lycke (Gothenburg, SE)
13:55 - 14:00	331	Closing D. Bates (Newcastle upon Tyne, UK) J. Lycke (Gothenburg, SE)

13:00 - 14:00 **Satellite Symposium 12: The NMOSD treatment landscape - a sea change**

Satellite Symposium, Hall C

Supported by Viela Bio

Chairs

B.A. Cree (San Francisco, US)
M. Tintoré (Barcelona, ES)

13:00 - 13:10	332	Lessons learned from current therapy F. Paul (Berlin, DE)
13:10 - 13:25	333	The changing landscape - The new therapies M. Levy (Boston, US)
13:25 - 13:45	334	Looking forward - new horizons for management of NMOSD patients A. Jacob (Liverpool, UK) J. Palace (Oxford, UK)
13:45 - 14:00	335	Open round table discussion F. Paul (Berlin, DE) M. Levy (Boston, US) A. Jacob (Liverpool, UK) J. Palace (Oxford, UK)

14:15 - 15:30 **Scientific Session 17: Late Breaking News**

Scientific Session, Hall A

Chairs

T. Derfuss (Basel, CH)
M. Zeineddine (Beirut, LB)

14:15 - 14:27	336	Efficacy and safety of ofatumumab versus teriflunomide in relapsing multiple sclerosis: results of the phase 3 ASCLEPIOS I and II trials S. Hauser (San Francisco, US)
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Scientific Programme

14:27 - 14:39	337	European academy of neurology guideline on palliative care of people with severe multiple sclerosis A. Solari (Milan, IT)
14:39 - 14:51	338	Continuation of natalizumab versus interruption is associated with lower risk of relapses during pregnancy and postpartum in women with MS D. Landi (Rome, IT)
14:51 - 15:03	339	Establish tolerance in MS with myelin-peptide coupled red blood cells - the phase Ib ETIMSredtrial A. Lutterotti (Zurich, CH)
15:03 - 15:15	340	Widening the spectrum of autoimmune astrocytopathies: a role for CSF glutamine synthetase and glial fibrillary acidic protein? I. Kleerekoper (LONDON, UK)
15:15 - 15:27	341	Cell-type-specific transcriptomics identifies neddylation as a novel therapeutic target in multiple sclerosis A.-K. Pröbstel (San Francisco, US)
16:00 - 18:00		Plenary Session, Hall A Plenary Session 2 - ECTRIMS Awards, ECTRIMS Honorary Members, Charcot Lecture and ECTRIMS 2019 Highlights Chairs M.P. Amato (Florence, IT) B. Hemmer (Munich, DE) J. Hillert (Stockholm, SE)
16:00 - 16:45	342	Presentation of selected poster awards, awards for best oral presentations by young researchers, awards for best RIMS poster and best RIMS oral presentation, the MSIF award as well announcement of ECTRIMS Honorary Members
16:45 - 17:15	343	Charcot Lecture: New prospects for repair in multiple sclerosis C. Lubetzki (Paris, FR)
17:15 - 17:35	344	Clinical highlights C.A. Young (Liverpool, UK) A. Siva (Istanbul, TR)
17:35 - 17:55	345	Scientific highlights A.E. Miller (New York, US) C. Lubetzki (Paris, FR)
17:55 - 18:00	346	Welcome to MSWashingtonDC2020 J. Cohen (Cleveland, US)