



18th International Congress on Neuronal Ceroid Lipofuscinoses

September 26 – 30, 2023
in Hamburg, Germany

SCIENTIFIC PROGRAM

DAY 1 - TUESDAY SEPTEMBER 26, 2023

15:00 - 17:30

Registration

Location: Foyer

17:45 - 18:00

Welcome to NCL 2023

Prof. Blanche Schwappach-Pignataro, Dean of University Medical Center
Hamburg-Eppendorf

Angela Schulz, Conference Chair / Jonathan Cooper, Co-Chair

Location: Lecture Hall

18:00 - 18:30

Keynote Lecture 1

Biology and (patho)physiology of lysosomes: Avenues, concepts and therapeutic aspects

Speaker: **Paul Saftig** - University of Kiel, DE

18:30 - 19:00

Keynote Lecture 2

Lysosomal dysfunction in dementia and GNR- a focus on TMEM106B

Speaker: **Markus Damme** - University of Kiel, DE

19:00 - 21:00

Evening Reception

Location: Foyer

09:00 - 09:30

Keynote Lecture 3

Loss of the Batten disease protein CLN3 leads to mis-trafficking of CI-M6PR and defective autophagic-lysosomal reformation

Speaker: **Alessia Calcagni** - Baylor College, Houston, USA

09:30 - 12:20

Genetics & Biology of the NCLs

09:30 - 09:35

Introduction by session chairs (Susan Cotman, Sara Mole)

09:35 - 09:55

O1: CLN3 transcript complexity revealed by public long-read RNA sequencing data mining - **Haoyu Zhang**, University College London, UK

09:55 - 10:15

O2: CLN3 Loss Disrupts Synaptic Homeostasis and Function: Implications for NCL Pathology - **Masood Ahmad Wani**, University of Mainz, DE

10:15 - 10:35

O3: CLN3 is required for the efflux of lysosomal K⁺ - **Hannah Best**, Cardiff University, UK

10:35 - 11:00

Morning Break - Tea and Coffee

11:00 - 11:20

O4: TRPML1 modulates CLN3 disease pathology - **Uma Chandrachud**, Massachusetts General Hospital / Harvard Medical School, Boston, USA

11:20 - 11:40

O5: The role of palmitoylation in Batten disease – **Stephane Lefrancois**, INRS (Institut national de la recherche scientifique), Laval, CAN

11:40 - 12:00

O6: Overview of mutant CLN3 transcripts within a disease context – **Christopher Minnis**, University College London, UK

12:00 - 12:10

O7: Structural and biochemical characterisation of CLN7 - **Tereza Vecerkova**, University of Aberdeen, UK

12:10 - 12:20

BDSRA - General announcement about new granting program and US Batten Disease Centers for Excellence - **David Pearce**, Sanford Health Research, Sioux Falls, USA

12:10 - 12:20

General announcement: 3rd edition Batten Disease book / BBA Special Issue on NCL Diseases – **Sara Mole**, University College London, UK

12:30 - 13:30

Lunch for all delegates

Location: Foyer

13:30 - 15:35

Disease Models & Mechanisms – Part 1

13:30 - 13:35

Introduction by session chairs (Stephanie Hughes, Jill Weimer)

13:35 - 13:55

O8: Patient derived 2D and 3D brain and retinal cell culture models revealing pathomechanisms underlying CLN3 Batten disease - **Mirta Mittelstedt Leal de Sousa**, Norwegian University of Science and Technology, Trondheim, NO

13:55 - 14:15

O9: Searching for Small Molecule-based Therapies for ATP13A2 Deficiencies – **Ursula Heins Marroquin**, Luxembourg Centre for Systems Biomedicine (LCSB), Belval, LUX

14:15 - 14:35

O10: ASO corrected CLN3 restores the molecular function of CLN3 - **Etienne Sauvageau**, INRS (Institut national de la recherche scientifique), Laval, CAN

14:35 - 14:55

O11: Sortilin Inhibition rescues lysosomal dysfunction in in-vitro and in-vivo models of Batten Disease - **Jill Weimer**, Sanford Health, Sioux Falls, USA

14:55 - 15:05

O12: Using Schizosaccharomyces pombe to understand the pathogenesis of CLN3 disease - **Jose Angel Clemente-Ramos**, UCL Great Ormond Street Institute of Child Health, London, UK

15:05 - 15:15

O13: Characterisation of an ATP13A2-deficient human iPSC-derived neuronal model of CLN12 Batten disease - **Stephanie Hughes**, University of Otago, NZ

15:15 - 15:25

O14: Neurological, radiological and neuropathological landmarks in CLN1 R151X sheep provide outcome measures for judging therapeutic efficacy - **Samantha Eaton**, Washington University in St Louis, USA

15:25 - 15:35

O15: Selective loss of CLN6 in astrocytes or microglia is insufficient for the development of Batten disease - **Clarissa Booth**, Sanford Health Research, Sioux Falls, USA

15.35 - 16:00

Afternoon Break - Tea and Coffee

Location: Foyer

DAY 2 - WEDNESDAY SEPTEMBER 27, 2023

16:00 - 17:45

Disease Models & Mechanisms - Part 2

16:00 - 16:05

Introduction by session chairs (Udo Bartsch, Tom Wishart)

16:05 - 16:25

O16: Calpain activity is negatively regulated by a KCTD7–Cullin-3 complex via atypical ubiquitination - **Jaiprakash Sharma**, Washington University in St. Louis, USA

16:25 - 16:45

O17: Zebrafish model of CLN2 disease provides a platform for high-throughput drug screening and identifies a hit compound (RVC1) with therapeutic potential - **Claire Russell**, Royal Veterinary College, University of London, UK

16:45 - 17:05

O18: Insight CLN5: Approaching therapies in the neuronal ceroid lipofuscinosis, using Zebrafish as a Tool - **Maria Marchese**, IRCCS Fondazione Stella Maris, Calambrone – Pisa, IT

17:05 - 17:25

O19: Brain-directed AAV gene therapy corrects lethal neurodegeneration and improves locomotor behaviour in a mouse model of CLN5 Batten disease - **Wenfei Liu**, University College London, UK

17:25 - 17:35

O20: Glial Cells Involvement in the Neuropathology of CLN2- **Miriam Domowicz**, University of Chicago, USA

17:35 - 17:45

O21: Mechanisms regulating the trafficking and secretion of CLN5 and CTSD - **Robert Huber**, Trent University, Peterborough, CAN

18:00 - 19:00

Poster Session 1 – odd numbers

Fingerfood during Poster Session

Location: Foyer and Pavilion

19:00

End of conference day

09:00 - 09:30

Keynote Lecture 4

The discovery and characterization of the lysosomal bis(monoacylglycero)phosphate synthase

Speaker: **Monther Abu-Remaileh** – Stanford University, USA

09:30 - 11:15

Biomarker Discovery & Omics

09:30 - 09:35

Introduction by session chairs (Diego Luis Medina, Stephan Storch)

09:35 - 09:55

O22: Neurometabolic zebrafish model for CLN3-deficiencies – **Ursula Heins Marroquin**, Luxembourg Centre for Systems Biomedicine (LCSB), Belval, LUX

09:55 - 10:15

O23: Combining cell-based high content imaging with repurposing approaches to tackle BD – **Diego Luis Medina**, Telethon Institute of Genetics and Medicine (TIGEM), Pozzuoli, IT

10:15 - 10:35

O24: Deep, untargeted biomarker discovery using a CLN3 Δ ex7/8 minipig model of Batten Disease – **Mitchell Rechtzigel**, Sanford Health Research, Sioux Falls, USA

10:35 - 10:45

O25: Chemical Probes from Phenotypic Screening for CLN3 Drug Discovery – **Paul Trippier**, University of Nebraska Medical Center, Omaha, USA

10:45 - 10:55

O26: A multimodal biomarker disease score detects early changes and comprehensively tracks disease state in a mouse model of Cln8 disease – **Joelle Anderson**, Sanford Health Research, Sioux Falls, USA

10:55 - 11:15

O27: Mapping Clinical Progression to Brain Atrophy in CLN2 Disease: A Prospective Neuroimaging Study – **Marvin Petersen**, University Medical Center Hamburg-Eppendorf, DE

11:15 - 11:30

Morning Break - Tea and Coffee

Location: Foyer

11:30 - 12:20

Translational Research: Preclinical – Part 1

11:30 - 11:35

Introduction by session chairs (Steven Gray, Luis Tecedor)

11:35 - 11:55

O28: Investigating interneuron dysfunction and loss as the basis for epileptogenesis in Cln2R207X mice – **Keigo Takahashi**, Washington University in St. Louis, USA

11:55 - 12:15

O29: Evolved AAV capsids for gene therapy of CLN2 disease – **Luis Tecedor**, The Children's Hospital of Philadelphia, USA

12:15 - 12:25

O30: Gene-Based Therapies for Neuronal Ceroid Lipofuscinosis – **Heshadi Primrose Mandalawatta**, University of Tasmania, AUS

12:30 - 13:30

Lunch for all delegates

Location: Foyer

13:30 - 14:30

Poster Session 2 – even numbers

Location: Pavilion

14:30 - 15:00

Keynote Lecture 5

LYSET – A key protein in the biogenesis of lysosomes

Speaker: **Sabrina Jabs** – Kiel University, DE

15:00 - 16:50

Translational Research: Preclinical – Part 1 *continued*

15:00 - 15:20

O31: An intravitreal neural stem cell-based enzyme replacement strategy ameliorates the retinal pathology in a mouse model of neuronal ceroid lipofuscinosis type 1 – **Udo Bartsch**, University Medical Center Hamburg-Eppendorf, DE

15:20 - 15:40

O32: Brain derived neurotrophic factor (BDNF) rescues retinal bipolar cells in CLN1 mouse model – **Yevgeniya Atiskova**, University Medical Center Hamburg-Eppendorf, DE

15:40 - 16:00

Afternoon Break - Tea and Coffee

16:00 - 16:10

O33: Development of NtBuHA as a Small Molecule Therapeutic for CLN1 Batten Disease: An Update on Research Efforts – **Rachel Johansson**, Circumvent Pharmaceuticals, Portland, USA

16:10 - 16:20

O34: AAV-mediated PPT1 replacement and cross correction for treating CLN1 Batten Disease – **Md Suhail Alam**, Spark Therapeutics, Philadelphia, USA

16:20 - 16:30

O35: Previously uncharacterized brainstem pathology in CLN1 disease mice can be treated by enzyme replacement – **Jonathan Cooper**, Washington University in St. Louis, USA

16:30 - 16:40

O36: Identifying and treating the impact of CLN1 disease upon the peripheral nervous system – **Jonathan Cooper**, Washington University in St Louis, USA

16:40 - 16:50

O37: CLN1 and CLN2 disease mice have enteric disease that is effectively treated by gene therapy – **Jonathan Cooper**, Washington University in St. Louis, USA

17:00 - 17:30

Conference Picture

Location: Lecture Hall

17:30 - 20:30

Boat trip on river Elbe

Meeting point: Foyer

20:30

End of conference day

09:00 - 10:35

Translational Research: Preclinical – Part 2

09:00 - 09:05

Introduction by session chairs (Rebecka Ahrens-Nicklas, Filippo Santorelli)

09:05 - 09:25

O38: Antisense oligonucleotides to treat vision loss in a porcine model of CLN3 Batten disease – **Matthew Stratton**, Rosalind Franklin University of Medicine and Science, North Chicago, USA

09:25 - 09:45

O39: Identifying and treating the effects of Cln3 disease outside the central nervous system – **Ewa Ziolkowska**, Washington University in St. Louis, USA

09:45 - 10:05

O40: Glycosphingolipid reduction with miglustat as a therapeutic strategy for neuronal ceroid lipofuscinoses – **Charlie Evans**, Cardiff University, UK

10:05 - 10:25

O41: Dose Escalation of CLN5 Gene Therapy Administered by Intracerebro-ventricular and Intravitreal Injection in CLN5-/- Sheep – **Nadia Mitchell**, Lincoln University, NZ

10:25 - 10:35

O42: Effects of trehalose in a mouse model for CLN7 disease – **Stephan Storch**, University Medical Center Hamburg-Eppendorf, DE

10:35 - 11:00

Morning Break - Tea and Coffee

Location: Foyer

11:00 - 12:45

Translational Research: Clinical – Part 1

11:00 - 11:05

Introduction by session chairs (An Dang Do, Alessandro Simonati)

11:05 - 11:25

O43: Preliminary safety data of a phase 1 first in human clinical trial support the use of high dose intrathecal AAV9/CLN7 for the treatment of patients with CLN7 disease – **Saima Kayani**, University of Texas Southwestern Medical Center, Dallas, USA

11:25 - 11:45

O44: Brain Proton MR Spectroscopy Measurements in CLN3 Disease – **An Dang Do**, National Institutes of Health (NIH), Bethesda, USA

11:45 - 11:55

O45: Fingolimod use in Neuronal Ceroid Lipofuscinosis type 1 patient leads to reduction in blood Neurofilament light chain (NFL) levels – **Martina Messina**, Great Ormond Street Children's Hospital, London UK

11:55 - 12:05

O46: The Unified Batten Disease Rating Scale – meaningful differences in CLN3 disease – **Erika Augustine**, Kennedy Krieger Institute, Johns Hopkins University, Baltimore, USA

12:05 - 12:15

O47: Fatigue and Pain in CLN3 Disease – underexplored elements of natural history – **Erika Augustine**, Kennedy Krieger Institute, Johns Hopkins Univ., Baltimore, USA

12:15 - 12:25

O48: The autonomic activity in JNCL (CLN3 disease) during episodes resembling Paroxysmal Sympathetic Hyperactivity – **Caroline Baekmann Jeppesen**, Aarhus University Hospital, DK

12:25 - 12:35

O49: An Open-label Safety Study of Batten-1 (miglustat) for the Treatment of CLN3 Disease: Preliminary safety and Pharmacokinetic (PK) results – **Gary Clark**, Baylor College of Medicine, Houston, USA

12:35 - 12:45

O50: Influence of fingolimod treatment on disease outcome and MRI brain volumes in children with CLN3 – **Guido Goj**, Vestische Children's Hospital, Datteln, DE

12:45 - 13:45

Lunch for all delegates

Location: Foyer

13:45 - 14:45

Poster Session 3 – odd and even numbers

Location: Pavilion

14:45 - 18:00

Translational Research: Clinical – Part 2

14:45 - 14:50

Introduction by session chairs (Erika Augustine, Paul Gissen)

14:50 - 15:10

O51: Intravitreal Enzyme Replacement Therapy to Prevent Retinal Disease Progression in Children with Neuronal Ceroid Lipofuscinosis Type 2 (CLN2): 18 month Interim Safety Report – **Catherine Jordan**, Nationwide Children's Hospital, Columbus, USA

15:10 - 15:30

O52: RGX-381 Investigational AAV9 Gene Therapy First-in-Human Trial for the Treatment of Ocular Manifestations of CLN2 Batten Disease – **Christina Ohnsman**, REGENXBIO, Rockville, USA

15:30 - 15:50

O53: First in-human intracisternal dosing of RGX-181 (adeno-associated virus 9 / human tripeptidyl peptidase 1) for a 5-year-old child with late infantile neuronal ceroid lipofuscinosis type 2 (CLN2): 6 month follow-up – **Carolina Fischinger Moura de Souza**, Hospital de Clínicas de Porto Alegre (HCPA), Porto Alegre, BRA

15:50 - 16:00

O54: Longitudinal Motor Development on the Expanded Neuronal Ceroid Lipofuscinosis 2 (CLN2) Clinical Rating Scale for Motor and Function – **Dawn Phillips**, REGENXBIO, Rockville, USA

16:00 - 16:10

O55: Deep brain stimulation (DBS) in a CLN2 patient with status dystonicus – a case report – **Eva Wibbeler**, University Medical Center Hamburg-Eppendorf, DE

16:10 - 16:30

Afternoon Break - Tea and Coffee

16:30 - 16:50

O56: Cerliponase alfa for the treatment of CLN2 disease in a patient cohort including children <3 years old – **Angela Schulz**, University Medical Center Hamburg-Eppendorf, DE

16:50 - 17:10

O57: Real-world clinical outcomes in children with CLN2 disease treated with cerliponase alfa – **Miriam Nickel**, University Medical Center Hamburg-Eppendorf, DE

17:10 - 17:30

O58: CLN2 newborn screening: Preparation of a pilot study in Germany – **Christian Posern**, University Medical Center Hamburg-Eppendorf, DE

17:30 - 17:40

O59: Volumetric description of brain atrophy in enzyme replacement therapy for patients with Neuronal Ceroid Lipofuscinosis 2: Supratentorial grey matter shows a slowed rate of decline compared to the natural history cohort – **Pritika Gaur**, Great Ormond Street Children's Hospital, London, UK

17:40 - 17:50

O60: Analysis of occurrence and treatment of device related adverse events under longterm ICV-ERT in CLN2 patients – **Christoph Schwering**, University Medical Center Hamburg-Eppendorf, DE

17:50 - 18:00

O61: Case study: Comparison of CLN2 disease course in two sisters with start of Cerliponase alfa treatment at pre-symptomatic versus symptomatic age – **Tita-Antonia Hagen**, University Medical Center Hamburg-Eppendorf, DE

18:00 - 21:00

Oktoberfest Get-together

Location: Foyer and Pavilion

21:00

End of conference day

09:00 - 10:30

Lay Summaries of Key Highlights

10:30 - 11:00

Morning Break - Tea and Coffee

Location: Foyer

11:00 - 12:45

Late Breaking Abstracts

11:00 - 11:05

Introduction by session chairs (Jonathan Cooper, Angela Schulz)

11:05 - 11:25

O62: The Batten disease glycerophosphodiester storage inhibits phospholipid catabolism in the lysosome – **Kwamina Nyame**, Stanford University, USA

11:25 - 11:45

O63: Mapping the molecular and functional alterations in CLN3 disease microglia – **Susan Cotman**, Massachusetts General Hospital / Harvard Medical School, Boston, USA

11:45 - 12:05

O64: Cellular and Molecular Basis of Vision loss in CLN3 disease – **Ruchira Singh**, University of Rochester, USA

12:05 - 12:25

O65: An individualized splice-switching antisense oligonucleotide for a rare CLN3 mutation – **Jessica Centa**, University of Michigan Medical School, Ann Arbor, USA

12:25 - 12:35

O66: Development of a novel two-step assay for detection and quantification of drug specific antibodies against Cerliponase alfa in serum samples of CLN2 patients – **Lena Marie Westermann**, University Medical Center Hamburg-Eppendorf, DE

12:45 - 13:45

Lunch and Marketplace Event

Location: Foyer and Pavilion

13:45 - 14:00

Closing Remarks and Awards

Location: Lecture Hall

14:00

End of Conference