

19th International Workshop on Fragile X and other Neurodevelopmental Disorders

Wednesday, September 18, 2019 – Day 1

14:00-16:00 **Arrival & Registration & Poster Set-Up**

(poster mounting Wednesday PM through Thursday AM)

16:00-16:15 **Welcoming remarks**

Meeting Chair: Maria G. Miano (Italy)

16:15-17:00 **Keynote Lecture**

Bekim Sadikovic (Canada)

DNA methylation signatures in mendelian developmental disorders as a diagnostic bridge between genotype and phenotype

17:00-19:00 **Fragile X Syndrome and *FMR1* related disorders**

Chairs: Barbara Bardoni (France) and Gary J. Bassell (USA)

17:00-17:15 **Frank Kooy (Belgium)**

Single-Cell and Neuronal Network Alterations in an in vitro Model of Fragile X Syndrome

17:15-17:30 **Francesco Longo (USA)**

Cell type-specific disruption of cortico-striatal circuitry drives repetitive and perseverative behaviors in Fragile X Syndrome model mice

17:30-17:45 **Nisha Raj (USA)**

Cell-type-specific profiling of molecular defects in a human induced pluripotent stem cell model of Fragile X Syndrome

17:45-18:00 **Paul Hagerman (USA)**

Relationship between Fragile X protein (FMRP) and IQ using a quantitative FRET-based method for determining FMRP levels

18:00-18:15 **Pietro Chiurazzi (Italy)**

*Methylated premutation of the *FMR1* gene in three sisters: correlating CGG expansion and epigenetic inactivation*

18:15-18:30 **Andrew McKechnie (UK)**

Functional magnetic resonance imaging in idiopathic intellectual impairment and Fragile X Syndrome

18:30-18:45 **Veronica Nobile (Italy)**

*Altered mitochondrial function in cells carrying a premutation or unmethylated full mutation of the *FMR1* gene*

18:45-19:00 **Veronica Martínez-Cerdeño (USA)**

New discoveries in the pathology of FXTAS

19:00 20:00 **Welcome cocktail**

20:30 **Dinner**

Thursday, September 19, 2019 – Day 2

07:00-08:00 Breakfast

08:00-09:30 **Clinical studies in Fragile X Syndrome and X-linked Intellectual Disabilities**

Chairs: Flora Tassone (USA) and Vincent des Portes (France)

08:00-08:15 **Angela Peron (Italy, USA)**

Cardinal Signs of Snyder-Robinson Syndrome

08:15-08:30 **Aurore Curie (France)**

A French cohort of 187 patients with X-Linked Intellectual Disability (XLID): developmental trajectories, physical and cognitive assessment, impact on primary care-giver

08:30-08:45 **David R. Hessel (USA)**

NIH Toolbox Cognitive Battery Validation for Individuals with Intellectual Disabilities

08:45-09:00 **Alessandra Murgia (Italy)**

Gait analysis in Fragile X Syndrome

09:00-09:15 **Lisa Cordeiro (USA)**

Evaluating trajectories of developmental and behavioral outcome measures in Fragile X Syndrome (FXS) across the lifespan: informing treatment trial design in FXS

09:15-09:30 **Marta Arpone (Australia)**

Intellectual Functioning and Behavioural Features Associated with Mosaicism in Fragile X Syndrome

09:30-10:15 Coffee break

10:15-11:00 Keynote Lecture

Chair: Charles E. Schwartz (USA)

Hans van Bokhoven (The Netherlands)

The Genetic landscape of Intellectual Disability: Extreme Genetic Heterogeneity Converging onto Shared Molecular and Cellular Disease Pathways

11:00-12:50 X-linked Intellectual Disability

Chairs: Cheryl Shoubridge (Australia) and Hilde van Esch (Belgium)

11:00-11:25 **Hilde van Esch (Belgium)**

Defective DNA polymerase α -primase leads to X-linked intellectual disability associated with severe growth retardation, microcephaly and hypogonadism

11:25-11:50 **Roger E. Stevenson (USA)**

Phenotypic Consequences of Duplication of Genes Associated with X-Linked Intellectual Disability

- 11:50-12:05 **Mike Fields** (Australia)
Xq13 chromosomal duplications including the neurocognitive gene RLIM are associated with intellectual disability, recognizable facial features and epilepsy in males
- 12:05-12:20 **Giovanni Neri** (Italy, USA)
XLID: Phenotype of Female Carriers
- 12:20-12:35 **Cheryl Shoubridge** (Australia)
Heterozygous loss of function of IQSEC2 /Iqsec2 leads to increased activated Arf6 and severe neurocognitive seizure phenotype in females
- 12:35-12:50 **Anna Fliedner** (Germany)
Investigating the pathomechanisms of Borjeson-Forssman-Lehmann Syndrome

13:00-14:30 Lunch and relax time

- 14:30 16:25 Autosomal syndromic and non-syndromic Intellectual Disability - I**
Chairs: Anita Rauch (Switzerland) and **Alessandra Murgia** (Italy)
- 14:30-14:55 Christiane Zweier** (Germany)
CTCF variants in 39 individuals with a variable neurodevelopmental disorder broaden the mutational and clinical spectrum
- 14:55-15:10 **Ype Elgersma** (The Netherlands)
Angelman Syndrome-associated mutations reveal the mechanism and importance of UBE3A nuclear targeting
- 15:10-15:25 **Paranchai Boonsawat** (Switzerland)
Elucidation of the phenotypic spectrum and genetic landscape in primary and secondary microcephaly and delineation of novel candidate genes
- 15:25-15:40 **Massimo Zollo** (Italy)
A genotype-phenotype correlation study in Microcephaly affected families carrying biallelic homozygous mutations (p.D106N) in the PRUNE-1 locus
- 15:40-15:55 **Anais Begemann** (Switzerland)
Clinical and molecular spectrum of the novel CYFIP2-related neurodevelopmental disorder and new insights into the underlying pathomechanism
- 15:55-16:10 **Gerarda Cappuccio** (Italy)
Genetic testing of a large cohort of patients with neurodevelopmental disorders
- 16:10-16:25 **Jean-Louis Mandel** (France)
Delineation of natural history and comorbidities in genetic forms of neurodevelopmental disorders through GenIDA, an international participatory database: identification of previously unreported respiratory problems in a large cohort study of Koolen-deVries Syndrome patients and initial analysis of response to antiepileptic drugs

16:30-18:00	Coffee break & Poster Session I (odd numbers)
18:00-19:55	Autosomal syndromic and non-syndromic Intellectual Disability- II Chairs: Christiane Zweier (Germany) and Frank Kooy (Belgium)
<u>18:00-18:25</u>	Alexandre Reymond (Switzerland) <i>Genome architecture and diseases: the 16p11.2 paradigm</i>
18:25-18:40	Amélie Piton (France) <i>De novo missense variants in genes encoding proteins involved in mRNA repression, AGO1 and DDX6, in Intellectual Disability</i>
18:40-18:55	Danny Huylebroeck (The Netherlands) <i>Multi-functional and multi-modal actions of the Mowat-Wilson Syndrome transcription factor ZEB2</i>
18:55-19:10	Emanuela Leonardi (Italy) <i>Mutations in PURA gene are related to Rett-like features, movement disorder, epilepsy and myelin function anomalies</i>
19:10-19:25	Irma Järvelä (Finland) <i>Phenotypic spectrum associated with a CRADD founder variant underlying frontotemporal predominant pachygyria in the Finnish population</i>
19:25-19:40	Nadif Kasri Nael (The Netherlands) <i>How to measure E/I balance in iPSC-derived neuronal models. A case for CDH13 deficiency</i>
19:40-19:55	Madhura Bakshi (Australia) <i>Application of Whole Genome Sequencing technology for molecular diagnosis of Intellectual Disability in a multiethnic cohort-initial experience and findings on reanalysis</i>
20:30	Dinner

Friday, September 20, 2019 – Day 3

07:00-08:00 Breakfast

08:00-09:25 Autism Spectrum Disorders
Chairs: Jean-Louis Mandel (France) and **Pietro Chiurazzi** (Italy)

08:00-08:25 Yuri Bozzi (Italy)

Aberrant somatosensory processing in mouse models of ASD

08:25-08:40 Annette Schenck (The Netherlands)

Kismet, the Drosophila orthologue of ID/ASD genes CHD7 and CHD8, is required for sleep integrity

08:40-08:55 Gaëlle Hayot (France)

Autism Comorbidities: Role of CHD8 during the Development of the Enteric Nervous System

08:55-09:10 Aditi Bhattacharya (India)

Closing the loop on dysregulated translation in Autism: What does data from Neuroligin 3 rat model tell us?

09:10-09:25 Emma Baker (Australia)

Incomplete Silencing of Full Mutation mRNA from Males with Fragile X Syndrome is Associated with More Severe Autistic Features

09:30-11:00 Coffee break & Poster session II (even numbers)

11:00-11:45 Keynote lecture

Chair: Claudia Bagni (Italy, Switzerland)

Silvia Cappello (Germany)

Modeling neurogenesis and neuronal migration with human cerebral organoids

11:45-13:10 Mechanisms of disease using animal models and human cells - I

Chairs: David Nelson (USA) and **Hans van Bokhoven** (The Netherlands)

11:45-12:10 Peng Jin (USA)

The loss of Fragile X mental retardation protein alters the development of human forebrain organoids

12:10-12:25 Edoardo Penna (Italy)

Cystatin B involvement in synapse physiology of rodents' brain and human cerebral organoids

12:25-12:40 David Picketts (Canada)

Characterization of a mouse model of the NEDD8L Syndrome

12:40-12:55 Bozena Kuzniewska (Poland)

Mitochondria biogenesis in the synapse is supported by local translation

12:55-13:10 Cecilia Laterza (Italy)

Modelling Fragile X Syndrome with iPSCs

13:10-14:45	Lunch and relax time
14:45-16:15	Mechanisms of disease using animal models and human cells - II Chairs: David Picketts (Canada) and Yuri Bozzi (Italy)
14:45-15:00	Arielle Valdez (USA) <i>Novel role of Cdh1-APC as a regulator of FMRP and protein synthesis at the synapse</i>
15:00-15:15	Giorgia Pedini (Italy) <i>FMRP affects glioblastoma progression regulating invasion-associated genes</i>
15:15-15:30	Malgorzata Drozd (France) <i>The first spontaneous mouse model of epilepsy of infancy with migrating focal seizures</i>
15:30-15:45	Anne Gregor (Germany) <i>Genetic Interaction screen for severe neurodevelopmental disorders reveals a functional link between Ube3a and Mef2 in Drosophila melanogaster.</i>
15:45-16:00	Ilaria Meloni (Italy) <i>High efficiency of CRISPR/Cas9-mediated gene editing for the correction of pathogenic mutations in Rett spectrum disorders</i>
16:00-16:15	Francois Bolduc (Canada) <i>Deciphering neurodiversity: Why translational analysis of Neurodevelopmental disorders requires a multimodal quantitative approach</i>
16:15-20:30	Free time
20:30	Gala Dinner

07:00-08:30 Breakfast

08:30-10:10 Therapeutic perspectives – I
Chairs: Randi Hagerman (USA) and Roger E. Stevenson (USA)

- 08:30-08:55 Daman Kumari (USA)**
Therapeutic Potential of CRISPR/Cas9 Mediated Deletion of CGG repeats for FMR1 Gene Reactivation in Fragile X Syndrome
- 08:55-09:10 Christina Gross (USA)**
Dysregulated protein phosphorylation as biomarker and treatment target in Fragile X Syndrome
- 09:10-09:25 Alberto Martire (Italy)**
Adenosine A2A receptor inhibition reverses synaptic and behavioral abnormalities in Fmr1 KO mice
- 09:25-09:40 Heather Bowling (USA)**
New protein expression-based blood biomarkers for Fragile X Syndrome
- 09:40-09:55 Vitaly Klyachko (USA)**
Understanding and correcting neuronal excitability defects in Fragile X Syndrome
- 09:55-10:10 Maria G. Miano (Italy)**
Histone demethylase KDM5C is a HDACi-sensitive central hub at the crossroads of transcriptional axes involved in multiple neurodevelopmental disorders

10:10-10:45 Coffee break

10:45-12:25 THERAPEUTIC PERSPECTIVES – II
Chairs: Christina Gross (USA) and Paul Hagerman (USA)

- 10:45-11:00 Randi Hagerman (USA)**
Controlled Trial of Lovastatin and PILI Intervention in children with Fragile X Syndrome
- 11:00-11:15 Flora Tassone (USA)**
Biomarkers predictive of metformin treatment in Fragile X Syndrome
- 11:15-11:30 Poonnada Jiraanont (Thailand)**
Molecular Biomarkers Predictive of Sertraline Treatment Response in Young Children with Autism Spectrum Disorder
- 11:30-11:55 Norifumi Shioda (Japan)**
G-quadruplexes as a therapeutic target for ATR-X Syndrome
- 11:55-12:10 Cheryl Shoubridge (Australia)**
Short term estradiol treatment reduces seizure severity but does not improve cognitive measures in mouse models of congenital epilepsy and intellectual disability
- 12:10-12:25 Lucia Verrillo (Italy)**
Phytocannabinoid treatment in a mouse model of West Syndrome with spontaneous seizures

12:25-13:15 Best paper/poster Award & Plans for the next Workshop

Chair: Giovanni Neri (Italy, USA)

13:15-14:30 Lunch Box & Departure

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F O U N D A T I O N

Research, Care, Advocacy

Associazione Italiana
Sindrome 'X-Fragile'



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