



19-21 May 2025



Human Technopole  
Milan

# Neurogenomics Conference



conference



# PROGRAMME

DAY 1 19 May 2025

**09:00-09:30** **Arrival and registration**

@ Reception of HT Auditorium

**09:30-10:00** **Welcome coffee**

@ HT Covered Plaza

**10:00-10:15** **OPENING**

@ HT Auditorium

**Session I - Neurodevelopment** (chair: Nereo Kalebic, HT, IT)

10:15-10:40 What made our brain so big and us smarter than Neandertals?

Wieland **Huttner**, MPI-CGB, DE (remote)

10:40-10:50 Importance of stereotypical migration routes for precise cortical interneuron positioning and circuit formation

Philipp **Abe**, Technische Universität Dresden, DE

10:50-11:15 Temporal control of Neurogenesis

Bassem **Hassan**, ICM, FR

11:15-11:25 Human-specific morphoregulatory signatures in basal radial glia characterize neocortex evolution

Mareike **Albert**, TUD Dresden University of Technology, DE

11:25-11:35 Single-cell and spatial transcriptomics reveal developmental conservation and adult divergence across tetrapod spinal cord evolution

Yuri **Ignatyev**, ISTA Austria, AT

11:35-11:45 Single-cell multimodal history tracing reveals neuronal identity specification

Taro **Kitazawa**, DANDRITE Nordic EMBL, Aarhus University, DK

**11:45-13:55** **Lunch**

@ HT Covered Plaza

**Session II - Neurodevelopment** (chair: Elena Taverna, HT, IT)

13:55-14:05 Exploring the role of the primary cilium in neuronal plasticity and development: How the quiet organelle claims center stage!

Nael **Nadif Kasri**, Radboud University Medical Centre, Human genetics department, NL

14:05-14:30 Gene regulation in response to neuronal activity

Yukiko **Gotoh**, University of Tokyo, JP

14:30-14:40 Ankycorbin - a strong membrane shaper and its role in human neuron morphogenesis

Maria **Schörnig**, University hospital Jena, Institute for Biochemistry I, DE

14:40-15:05 Coordinated remodeling of neural stem cell epigenome and cell fate bias during mouse cortical development

Boyan **Bonev**, Helmholtz Pioneer Campus, DE

**15:05-15:35** **Coffee**

@ HT Covered Plaza





# PROGRAMME

DAY 1

19 May 2025

## Session III - Brain Evolution (chair: Federico Rossi, IIT, IT)

15:35-16:00	Mapping development of the human brain using high-throughput genomics	Tom <b>Nowakowski</b> , UCSF, US
16:00-16:10	Investigating Evolutionary Expansion of the Human Cerebellum Using Cross-Species Cerebellar Organoids	Luca <b>Guglielmi</b> , MRC Laboratory of Molecular Biology, UK
16:10-16:35	Timing mechanisms linking development and evolution of the human brain	Pierre <b>Vanderhaeghen</b> , VIB, BE
16:35-16:45	3D epigenome evolution underlies divergent gene regulatory programs in primate neural development	Silvia <b>Vangelisti</b> , Helmholtz Pioneer Campus, DE
16:45-17:10	The interaction of genomes and mechanics in brain development and evolution	Roberto <b>Toro</b> , Institut Pasteur, FR
<b>17:10-18:10</b>	<b>Keynote Speaker</b> - Constructing and deconstructing the human nervous system to study development and disease	Sergiu <b>Pasca</b> , Stanford University, US <i>introduced by Giuseppe Testa</i>
18:10-18.30	Walking time to Triulza Academy	
<b>18.30-21:30</b>	<b>Light Refreshment &amp; Posters</b>	@ Triulza Academy



# PROGRAMME

DAY 2 20 May 2025

## Session IV - Neurodegeneration and regeneration (chair: Jose Davila-Velderrain)

09:00-09:25	Regeneration of a tetrapod nervous system	Elly <b>Tanaka</b> , IMBA, AT
09:25-09:35	Single-Cell Multiomic Atlas of Human Cortical Development in Down Syndrome	Vincenzo <b>De Paola</b> , Duke-NUS Medical School, SG
09:35-10:00	Body-brain communication at the choroid plexus	Aleksandra <b>Deczkowska</b> , Institut Pasteur, FR
10:00-10:10	Decoding Cerebellar Cellular and Molecular Dynamics in Sudden Infant Death Syndrome (SIDS) Across Developmental and Corrected Ages	Javid <b>Ghaemmamghami</b> , University of Michigan, US
10:10-10:35	Single-Cell and Spatial Transcriptomics and Epigenomics of Oligodendroglia in Development and in Multiple Sclerosis	Gonçalo <b>Castelo-Branco</b> , Karolinska Institute, SE
10:35-11:00	The EMBO Keynote Lecture - From correlation to mechanisms: how genetics determine your risk of Alzheimer's disease	Bart <b>De Strooper</b> , VIB, BE

**11:00-11:30 Coffee**

@ HT Covered Plaza

## Session V - Neuroimmunology (chair: Oliver Harschnitz, HT, IT)

11:30-11:55	Leveraging single cell technologies to engineer the immune system	Ido <b>Amit</b> , Weizmann Institute, IL
11:55-12:05	Exploring the role of the piRNA pathway in microglia and neuroinflammation	Silvia <b>Beatini</b> , Istituto Italiano di Tecnologia, IT
12:05-12:30	Tau uptake, processing and secretion by human iPSC-microglia	Sally <b>Cowley</b> , University of Oxford, UK
12:30-12:40	Village-based neural progenitor cell proliferation and viability assays	Michael <b>Wells</b> , University of California Los Angeles, US
12:40-13:05	Mapping and modeling brain macrophages	Florent <b>Ginhoux</b> , A-STAR, SG

**13:05-14:15 Lunch**

@ HT Covered Plaza

## Session VI - Stem cell and organoid disease modelling

(chair: Veronica Krenn, Milano-Bicocca, IT)

14:15-14:40	From Spikes to Structure: Spontaneous Activity in Cortical Development	Simona <b>Lodato</b> , Humanitas RC, IT
14:40-14:50	Benchmarking cerebellar organoids to model autism spectrum disorder and human brain evolution	Davide <b>Aprile</b> , Human Technopole, IT
14:50-15:15	Cellular Crosstalk in Brain Development	Silvia <b>Cappello</b> , LMU, DE



# PROGRAMME

DAY 2 20 May 2025

15:15-15:25	Passage of time in brain organoids: the journey to understand human brain development and maturation	Irene <b>Faravelli</b> , Harvard University, US
15:25-15:50	Engineering brain organoids for modeling neural development and diseases	Guo-li <b>Ming</b> , University of Pennsylvania, US
<b>15:50-16:20</b>	<b>Coffee</b>	@ HT Covered Plaza
<b>16:20-17:20</b>	<b>Meet the Speakers</b>	<i>PhD/Postdocs Groups</i>
17:30-18:45	Transfer to UniMi	Meeting point: HT Covered Piazza
<b>18:45-19:45</b>	<b>Keynote Speaker</b> - The idea of the brain and the future of neuroscience	Matthew <b>Cobb</b> , The University of Manchester, UK <i>introduced by Giuseppe Testa @ University of Milan, Aula Magna, via Festa del Perdono 7</i>
<b>19:45-21:30</b>	<b>Light refreshment</b>	@ University of Milan, Cortile del '700, via Festa del Perdono 7





# PROGRAMME

DAY 3 21 May 2025

## Session VII - Cancer neuroscience

(chair: Stefania Faletti, HT, IT)

- |             |  |  |
|-------------|--|--|
| 08:45-09:10 | A brain-wide neuronal circuit connectome of human glioblastoma                                   | Hongjun <b>Song</b> , University of Pennsylvania, US |
| 09:10-09:20 | Glioblastoma stem cell morphotypes convey distinct cell states and clinically relevant functions | Carlotta <b>Barelli</b> , Human Technopole, IT       |
| 09:20-09:45 | The neural environment of cancer and beyond  | Claire <b>Magnon</b> , INSERM, FR                    |
| 09:45-09:55 | Mapping tumour heterogeneity in glioblastoma with integrated single cell and spatial genomics    | Fani <b>Memi</b> , Wellcome Sanger Institute, UK     |
| 09:55-10:20 | Targeting the neural blueprint of brain tumors   | Varun <b>Venkataramani</b> , DKFZ, DE                |

**10:20-10:50**

**Coffee**

@ HT Covered Plaza

## Session VIII - Neurodiversity in language and cognition

(chair: Giuseppe Testa, HT, IT)

- |             |  |  |
|-------------|--|--|
| 10:50-11:15 | The Human Condition through Human Conditions   | Cedric <b>Boeckx</b> , ICREA, ES               |
| 11:15-11:40 | The genetic architecture of autism: from medicine to neurodiversity  | Thomas <b>Bourgeron</b> , Institut Pasteur, FR |
| 11:40-11:50 | Neurodiversity in a dish: integrating epidemiology and cortical brain organoid modelling through a hormonal signalling atlas | Nicolò <b>Caporale</b> , Human Technopole, IT  |
| 11:50-12:15 | Autism, ability and the human brain on a continuum   | Daniel <b>Geschwind</b> , UCLA, US             |
| 12:15-12:40 | Tracing Neurogenomic Disorders Across Human Phenotypes   | Armin <b>Raznahan</b> , NIH, US                |

**12:40-13:45**

**Lunch**

@ HT Covered Plaza

**13:45-14:00**

**Best poster award**

@ HT Auditorium

**14:00-15:00**

**Keynote Speaker** - (Epi)Genomics Of Stress - Implications For Psychiatry

Elisabeth **Binder**, Max Planck Institute of Psychiatry, DE  
*introduced by Giuseppe Testa*

**CLOSING REMARKS & DEPARTURE**



# POSTER SESSION

19 May 2025 / h. 18:30-21:30  
@ Triulza Academy

Full list of  
contributions here



Poster Board #	Title	Presenter
1	Inference of Possible Novel Autism Risk Genes by Comparative Socio-Genomics and Molecular Network Analysis	Alessandra Mezzelani
2	Regulatory logic of human cortex evolution by combinatorial perturbations	Alessandro Vitriolo
3	OPEN-array: a simple and powerful tool to increase the throughput of imaging-based organoid characterization	Alessia Valenti
4	Shifting perspectives: the Impact of the Immune System on Neurodegeneration in Parkinson's Disease	Alice Calderoni
5	Cell-based modulation of the brain's immune response	Amalia Perna
6	Exome sequencing identifies human knockouts for 34 candidate genes plausibly linking with severe neurodevelopmental manifestations.	Ambrin Fatima
7	Hi-C and RNA-seq analyses on hiPSC-derived astrocytes allow to further decipher pathomechanisms in Autosomal Dominant adult-onset demyelinating LeukoDystrophy (ADLD)	Anna Basile
8	IMPACT OF EBV INFECTION ON CORTICAL NEURODEVELOPMENT	Anna Dell'Armi
9	Uncovering the pivotal role of lncRNAs in cortical neuron differentiation from human embryonic stem cells	Aannalaura Tamburrini
10	SUPERNUMERARY X CHROMOSOMES SHAPE BRAIN ORGANOID ARCHITECTURE AND FUNCTIONS IN A DOSE-DEPENDENT FASHION	Antonio Adamo
11	Deciphering the Role of WWOX in Oligodendrocyte Maturation and Remyelination	Baraa Abudiab
12	Patient-specific mechanisms in SYNGAP1 syndrome: toward targeted therapeutic strategies	Bernadette Basilico
13	Neural organoids as a model to track the formation and maturation of dendritic spines	Bogna Badyra
14	The role of lipid droplets during mouse and human brain development	Carla Marie Igelbüscher
15	The continuum of human neurodiversity: from in vitro to in silico and back for elucidating the molecular mechanisms of cortical neurodevelopment.	Carlo Emanuele Villa
16	Cell-type-specific proteome dysregulation in Fragile X Syndrome brain organoids	Carmela Ribecco
17	A Scalable and Reproducible Workflow for High-Throughput Analysis of Cortical Brain Organoids in Neurodevelopmental Disorders Research	claudio Maderna
18	Molecular mechanisms of neurodevelopmental SPTBN1 syndrome	Damaris Lorenzo
19	Unravelling the molecular basis of DLG4-related Synaptopathy	Dania Abdellatif
20	Exploring the ontogenesis of adult neural stem cells across species	Daniela Cimino
21	A stem cell platform for modelling triplet repeats somatic instability in Huntington's Disease	Dario Besusso
22	COMPASS: Comparative Organoid Mapping Platform for Assessment by Single-cell Similarity	Davide Castaldi



# POSTER SESSION

19 May 2025 / h. 18:30-21:30  
@ Triulza Academy

Full list of  
contributions here



23	Identification and Functional Study of Non-Coding DNA Variants in Microphthalmia, Anophthalmia, and Coloboma Patients	Delia Morciano, Gabriele Antoniazzi
24	Understanding the physiological and pathological roles of the tRNA deaminase complex ADAT2/ADAT3 during cortical development	Efil Bayam
25	Patient-derived cortical organoids to decode HCN1 mutations in Developmental and Epileptic Encephalopathy 24	Elena Florio
26	Leveraging Brain Organoids to Explore Neurodevelopmental Mechanisms in Congenital Central Hypoventilation Syndrome (CCHS)	Eleonora Piscitelli
27	Exploiting advanced human induced pluripotent stem cell (hiPSC)-based 3D models to study Globoid Cell Leukodystrophy.	Elisabeth Mangiameli
28	Functional characterization of putative non-coding regulatory elements in Autism Spectrum Disorder risk	Elvira Zakirova
29	ATM-Knockout human neural progenitor cells: a powerful platform for identifying therapeutic targets in Ataxia-Telangiectasia	Emanuela Pessolano
30	RNA Sequencing Reveals a Strong Predominance of THRA Splicing Isoform 2 in the Developing and Adult Human Brain	Eugenio Graceffo
31	Non-coding structural variants identify a commonly affected regulatory region steering FOXG1 transcription in early neurodevelopment	Eva D'haene
32	Cholesterol as a synaptogenic factor involved in the development of proper synaptic structure in an hiPSC-derived neurons model of Rett syndrome.	Fabio Biella
33	Distinct transcription factor networks specify neocortical versus hippocampal regionalization during early telencephalic development	Faye Chong
34	Human neurodiversity in a dish: the regulatory logic of cortical neurodevelopment unmasked by chromatinopathies	Filippo Prazzoli
35	RNA ligase 1 contributes to neuronal resilience and sensory function in zebrafish	Fiona Klusmann
36	Modelling dopamine/ $\alpha$ -synuclein interplay in Parkinson's disease using differentiated SH-SY5Y cells	Francesca Martorella
37	Modelling Sex Bias and Tumor Initiation of Group 3 and Group 4 Medulloblastoma in Human Cerebellar Organoids	Frederik Arnskötter
38	Investigating gene-environment interactions in neurodevelopmental disorders through single-cell profiling of cortical brain organoids	Gaja Matassa
39	Molecular diversity of adult mouse cerebellar astrocytes	Giacomo Turrini
40	CRISPR-CAS9-BASED FUNCTIONAL INVESTIGATION OF THE "DARK GENOME" IN SEARCH OF PUTATIVE DOWNSTREAM EFFECTORS OF SOX2 IN NEURODEVELOPMENTAL DISEASE	Giorgia Pozzolini, Silvia Kirsten Nicolis
41	Unrevealing the subcellular architecture of mRNAs networks in neural stem cells during brain development	Giulia Visani
42	Modeling activity-dependent transcription in iPSC-derived human cortical organoids at single-cell resolution	Illia Simutin
43	Dissecting the pathomolecular mechanisms of Prr12 gene loss leading to neurodevelopmental and eye abnormalities	Irina Cutei





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19 May 2025 / h. 18:30-21:30  
@ Triulza Academy

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contributions here



44	Beyond Cerebrum and Neurosurgery: A Systematic Review on Chiari Malformation Type I integrating molecular and behavioral methodologies	Irmak Oezdil
45	Elucidating SYNGAP1 Isoform Functions in Human Neurodevelopment Using Cerebral Organoids	Ivanna Kupryianchyk-Schultz
46	Multiomic features associated with risk genes for epilepsy	Jack Highton
47	Generation of seven human induced pluripotent stem cell lines with CRISPR/Cas9-mediated deletions in the DMD gene	Kayleigh Putker
48	A miRNA-based therapeutic approach for medulloblastoma in xenotransplanted wild-type mouse embryos	Letizia La Rosa
49	Optimized hESC-based approaches for restoring striatal function in Huntington's Disease: insights into in-vivo cellular identity and functionality	linda scaramuzza
50	hiPSC-derived models to dissect CAPRIN1-linked neurodevelopmental disorder: the role of CAPRIN1 loss on neuronal differentiation, neurogenesis, and proliferation.	Lisa Pavinato
51	TMEM151A, a new causative gene for Paroxysmal Kinesigenic Dyskinesia	Lisastella Morinelli
52	Causal gene regulatory network reconstruction highlights cell type-specific interactions in neurodevelopment	Lorenzo Basile
53	Presenting the proposed project: The gut microbiota in the first 1000 days of life and its relationship to a healthy neurodevelopment in child	Lucia Occhigrossi
54	Modeling patient-specific long-term neurological vulnerabilities to post-acute SARS-CoV-2 infection using patient-derived models	Luciana Isaja
55	Reduced H2AK119ub levels during early neurodevelopment sensitise the genome to ectopic transcription factor-mediated gene activation	Lucy Doyle
56	Reconstruction of cortical development through multi-modal epigenetic perturbation in organoids	Ludovico Rizzuti
57	The role of PHF3 during neuronal differentiation and in neuronal disorders	Magdalena Engl
58	CROPseq-multi: A versatile solution for scRNA-seq based pooled multiplexed CRISPR screening in stem cell-derived neural models	Manuel Lessi
59	Exploiting hiPSC-derived neural stem cells with a radial glia-like signature and favorable long-term in vivo safety profile for CRISPRa-engineering in demyelinating disorders	Marco Luciani
60	Modeling Autosomal Dominant LeukoDystrophy pathology with human iPSC-derived glial cells: altered phenotypes and rescue strategies	Martina Lorenzati
61	PRC2 gatekeeps the balance between direct and indirect neurogenesis in human corticogenesis	Martina Pezzali
62	Golgi traffic and brain development in health and disease	Martina Polenghi
63	Application of 2D and 3D models on Neurodevelopmental disorders	Martina Servetti
64	Immune activation during pregnancy drives TREM2 dysregulation and synaptic defects via maternal Type-I Interferon responses	Matteo Bizzotto
65	Unravelling Convergence and Divergence Mechanisms in Neurodevelopmental Disorders Through Single-Cell Transcriptomics	Mazen Khaddour



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19 May 2025 / h. 18:30-21:30  
@ Triulza Academy

Full list of  
contributions here



66	Tissue-Specific 3D Genome and Splicing Signatures of Clinically Accessible Tissues Inform Sample Selection for Assessing the impact of Genomic Aberrations in Neurodevelopmental Disorders	Michael B Vaughan
67	Multiscale Insights into BBSOAS: Linking NR2F1 Mutations to Brain Development and Mitochondrial Dysfunction	Michele Studer
68	Activity-dependent chromatin reorganization in cortical neurons depends on SATB2	Nico Wahl
69	CHD2 Dosage Links Autolysosomal Pathway to Cortical Maturation in Disease and Evolution	Oliviero Leonardi
70	Insights into Mitochondrial Homeostasis and mTOR/AKT Signaling in Peripheral Neuropathies: A Focus on CMT2A2, ADOA, and CMT4B3	Paola Zanfardino
71	B7-H3/CD276 in Brain Tumors: A Paradoxical Role in Tumor Initiation Over Progression	Patricia Benites Goncalves da Silva
72	Induced Pluripotent Stem Cell (iPSC)-derived Microglia and Organoids for neuronal disease modeling	Patrizia Bossolasco
73	Insights from cell villages: imbalance in multi-donor iPSC differentiation models	Pau Puigdevall Costa
74	Investigating the transcriptional landscape of cerebellar primary cilia across development	Reto Cola
75	GENERATION AND CHARACTERISATION OF CORTICAL BRAIN ORGANOIDS FROM HUMAN EMBRYONIC GERM CELL-LIKE CELLS	Riccardo Nagni
76	EPM1 Epilepsy: Intrinsic and Extrinsic Mechanisms of Defective Neural Cell Fate	Rossella Di Giaimo
77	Transcriptional signatures of hippocampal tau pathology in primary age-related tauopathy and Alzheimer's disease	Ryan Palaganas
78	Deciphering the pathological mechanisms of Cohen Syndrome during cortical development	salma amin
79	Placenta-brain axis and neurovascular communication during mammalian brain development	Samir Vaid
80	Combining Human Stem Cells and Cortical Organoid Technologies to Explore the roles of the Transcription Factor FOXP1 in Neuroimmune Development	Sara Elisabetta Barilà
81	From pluripotency to germ cells and back: modeling the molecular impact of endocrine disruptors on intergenerational inheritance and human neurodevelopment in a dish	Sarah Stucchi
82	Next-Generation Electrophysiology for Functional Characterization of Human Neural Organoids and Assembloids	Silvia Oldani
83	Study of the function of the natural antisense lncRNA PHOX2B-AS1 in 2D and 3D iPSc derived neuronal models of Congenital Central Hypoventilation Syndrome	Simona Di Lascio
84	Wireless Integration: Temporal Interference Stimulation to Enhance Stem Cell Therapies in Parkinson's Disease	Sofia Peressotti
85	Decoding the interplay between morphology and stemness in glioblastoma: a neurodevelopmental perspective	Stefania Faletti
86	Multiomic Analysis Reveals a Regulatory Network of miRNAs, circRNAs, and genes in Proneural Glioblastoma	Teresa Gravina
87	A single cell atlas to unveil the diversity of mouse cerebellar astrocytes: insights into their molecular identities, development, and functions	Valentina Cerrato



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19 May 2025 / h. 18:30-21:30  
@ Triulza Academy

Full list of  
contributions here



88	Characterization of human healthy i3 lower motor neurons exposed to CSF from ALS patients stratified by UNC13A and C9ORF72 genotype	Valeria Casiraghi
89	Unlocking the Guardian of the Brain: Choroid Plexus and Neurodevelopmental Insights	Vanessa Aragona
90	Unveiling myeloid-mediated enzymatic correction of ARSA-deficient neural cells in hematopoietic stem cell gene therapy for Metachromatic Leukodystrophy	Vasco Meneghini
91	UBE2I mutations unveil the critical role of SUMOylation in neurodevelopmental disorders	Verdiana Pullano
92	A Combined Dynamical and Causal Framework for Identifying Gene Regulatory Targets in NeuroCOVID	Vittorio Aiello
93	The synaptic transcriptome of human iPSC-derived motoneurons	Vittorio Padovano
94	Cell type-specific intronic RNAs shape genome architecture during neuronal lineage specification	Wing Hin Yip

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