ISN-PORT Neuroscience School 2025

The Role of Metabolism in Neurodegeneration

20-24 October 2025, Łukasiewicz – PORT, Wrocław, Poland

School Report

ISN International Society for Neurochemistry

P4Health Center of Excellence for Precise Phenotyping and BioDataBanking

Łukasiewicz PORT Polish Center for Technology Development

1. Overview

The inaugural ISN-PORT Neuroscience School, titled **The Role of Energy Metabolism in Neurodegeneration**, was held from 20 to 24 October 2025 at Łukasiewicz – PORT Polish Center for Technology Development in Wrocław, Poland. The school focused on the growing recognition of metabolic dysfunction as a critical factor in the onset and progression of neurodegenerative diseases, including Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis. By examining how energy metabolism shapes brain health at molecular, cellular, and translational levels, the school provided a comprehensive platform for training and discussion on this timely theme. The event brought together 30 early-career neuroscientists from nine countries, selected from more than 120 applications across Europe, alongside 16 expert faculty members. Over five intensive days, the program featured four keynote lectures, eight thematic lectures, three soft-skills workshops, four hands-on training sessions, one clinical workshop, and a career panel, covering models, methods, and advances in metabolic regulation in neurodegeneration.

Beyond the scientific program, the school emphasized collaboration and community building. Participants engaged in poster sessions, blitz presentations, and group grant-proposal exercises, while mentoring roundtables and networking activities facilitated exchange between trainees and faculty. This was the first ISN School organized in Poland, made possible through funding from the International Society for Neurochemistry (ISN) and institutional support from Łukasiewicz – PORT, the Life Sciences and Biotechnology Center, and the P4Health Center of Excellence for Precise Phenotyping.

The outcomes extend beyond the five-day event. The school fostered new collaborations, strengthened professional networks, and laid the foundation for a community of young scientists dedicated to advancing research at the intersection of metabolism and neurodegeneration.

Dr. Ismail Gbadamosi

School Organizer

2. School Advertisement and Participant Selection

The ISN-PORT Neuroscience School was advertised on the official websites of ISN and Łukasiewicz – PORT, and through social media, for five weeks. We received 125 applications from early-career neuroscientists across Europe and neighboring regions. The call was promoted via ISN communication channels, Łukasiewicz – PORT networks and website, neuroscience mailing lists, and partner universities and graduate schools.

Applicants submitted a short CV (maximum two pages), a motivation letter (maximum 300 words) describing academic goals and reasons for attending, an abstract (maximum 250 words) aligned with the school theme, and a letter of recommendation from a supervisor, principal investigator, or department head. Eligibility was limited to candidates enrolled in or affiliated with neuroscience-related programs (MSc, PhD, or postdoctoral level) with demonstrated interest or experience in neurochemistry, metabolism, or neurodegeneration.

All applications were screened for eligibility and completeness, then independently reviewed by at least three members of the Local Organizing Committee (LOC). The predefined evaluation criteria were: academic background and relevance to the theme (30%), clarity and strength of motivation (30%), quality of the submitted abstract (25%), and strength and content of the recommendation letter (15%). Following the evaluation, the LOC ranked all applications and selected the top 30 candidates. The final cohort comprised 21 females and 9 males, representing Poland, Italy, the United Kingdom, Spain, Romania, France, Germany, Austria, and Norway. Participants included medical students, MSc students, PhD candidates, and early postdoctoral researchers.

Table 1. List of Participants

S/N	Name	Gender	Country
1	Agata Małoburska	F	Poland
2	Aleksandra Skewers	F	Poland
3	Alessandra Longo	F	Italy
4	Anna Dębska	F	Poland
5	Anna Kostecka	F	Poland
6	Carolin Wüst	F	Spain
7	Christina Ureche	F	Romania
8	Daisy Palmer	F	United Kingdom
9	Ejiohuo Ovinuchi	M	Poland
10	Erkan Metin	M	Poland
11	John Oyem	M	Norway
12	Karolina Nowacka	F	Poland
13	Katarzyna Kurecka	F	Poland
14	Kimberley Morris	F	United Kingdom
15	Klaudia Aleksandra Kuzdrowska	F	Poland
16	Luca Zangrando	M	Italy
17	Marek Kotas	M	Poland
18	Mariem Sallemi	F	France

19	Martyna Nalepa	F	Poland
20	Mateusz Drożdż	M	Poland
21	Minnah Irfan	F	Germany
22	Natalia Stelmach	F	Poland
23	Nicole Kryniecka	F	Poland
24	Noemi Orsini	F	Italy
25	Paweł Hanus	M	Poland
26	Regina Nadalińska	F	Austria
27	Sandra Binias	F	Poland
28	Tansu Göver	F	Poland
29	Xuanyu Huang	M	Italy
30	Zeinab Bedrood	F	Poland

3. Program of the School

The ISN PORT Neuroscience School took place over five days, combining four keynote lectures, eight thematic lectures, four hands-on workshops, one clinical workshop, and three soft-skills workshops. The program was structured to provide participants with a balanced blend of theoretical knowledge, practical experience, and career development opportunities. Student engagement was organized at three levels: poster presentations, blitz talks, and group research proposal presentations, with awards given in each category to recognize excellence and participation. Each day featured a combination of scientific lectures in the morning and applied sessions in the afternoon, complemented by mentoring roundtables, panel discussions, and networking activities that fostered interaction between participants and faculty. The final day of the school concluded with a cultural tour through the beautiful city of Wrocław, followed by a farewell dinner that marked the close of an intensive and rewarding week.

Program Schedule of the ISN PORT Neuroscience School

Day / Time	**Activity**	**Speaker / Facilitator**
Monday, 20 October 2025	12.00–17.30 – Arrival 17.30–19.00 – Dinner / Welcome Address	—
Tuesday, 21 October 2025	09.00–10.00 – Keynote Lecture 1: *Transcriptomic approaches to metabolism and neurodegeneration*	Dr. Bartosz Wojtas
	10.00–10.45 – Lecture 1: *Enhancing cellular proteostasis as a strategy against misfolded protein accumulation*	Dr. Agnieszka Krzyżosiak
	10.45–11.15 – Coffee Break	—
	11.15–12.00 – Lecture 2: *Glucose metabolism – mechanisms and techniques*	Dr. Ismail Gbadamosi
	12.00–12.45 – Research Proposal Group Discussion	—
	12.45–14.00 – Lunch	—
	14.00–14.45 – Lecture 3: *Does gene deletion always have a negative impact on cognitive functions?*	Dr. hab. Witold Konopka
	14.45–16.30 – Workshop 1: *The Art of Scientific Writing and Grant Writing*	Dr. Ali Jawaid
	16.30–17.15 – Coffee Break	—

	17.15–18.00 – Lecture 4: *Experimental models to study neurodegeneration*	Dr. Raluca Contu, Dr. Rohit Shrivastava
	18.00–19.30 – Dinner + Mentoring Roundtables	All faculty members
Wednesday, 22 October 2025	09.00–10.00 – Keynote Lecture 2: *Beyond energy – astrocytic mitochondria as signals for behavior*	Prof. Juan Bolaños
	10.00–10.45 – Data Blitz 1 (Presentations 1–14)	Participants
	10.45–11.15 – Coffee Break	—
	11.15–12.00 – Data Blitz 2 (Presentations 15–29)	Participants
	12.00–12.45 – Workshop 2: *The Art of Public Speaking*	Dr. Ali Jawaid
	12.45–13.45 – Lunch	—
	13.45–16.15 – Hands-on Training (parallel sessions): *Transcriptomics (R-data workshop)*, *Stem cell differentiation and metabolic phenotyping*, *Live-cell metabolic flux analysis*, *Rodent behavioral analysis using open-source tools*	Faculty instructors
	16.15–16.45 – Coffee Break	—
	16.45–18.00 – Poster Session 1 (Posters 01–14)	Participants
	18.00–19.30 – Dinner + Mentoring Roundtables	—
Thursday, 23 October 2025	09.00–10.00 – Keynote Lecture 3: *Risk factors for neurodegenerative diseases – from lifestyle to vaccines*	Prof. Paul Schulz
	10.00–10.45 – Lecture 5: *TDP-43–metabolism interplay – implications for neurodegeneration*	Dr. Ismail Gbadamosi
	10.45–11.15 – Coffee Break	—
	11.15–12.45 – Workshop 3: *Data Analysis for Absolute Beginners*	Dr. Ali Jawaid
	12.45–13.45 – Lunch	—
	13.45–16.15 – Hands-on Training (Day 2, parallel sessions)	Faculty instructors
	16.15–16.45 – Coffee Break	—
	16.45–18.00 – Poster Session 2 (Posters 15–29)	Participants
	18.00–19.00 – Dinner	—
	19.00–20.00 – Research Proposal Presentations	Participant Groups
Friday, 24 October 2025	09.00–10.00 – Keynote Lecture 4: *Western diet-induced lipids – linking obesity with neuroinflammation*	Dr. Róisín McManus
	10.00–10.45 – Clinical Workshop 1: *Differential diagnosis of clinical cases in neurodegeneration*	Prof. Paul Schulz
	10.45–11.15 – Coffee Break	—
	11.15–12.00 – Lecture 6: *Glucocorticoid regulation of astrocyte metabolism*	Dr. Michał Ślęzak
	12.00–12.20 – Lecture 7: *The moonlighting proteins – from glucose metabolism to brain pathologies*	Dr. Przemysław Duda
	12.20–12.45 – Lecture 8: *About ISN, ESN, and membership benefits*	Weronika Tomaszewska
	12.45–13.30 – Lunch	—
	13.30–14.30 – Career Panel Discussion	Faculty panel
	14.30–15.00 – Award / Review Discussion	—

	15.00–18.00 – Touristic Activity	—
	18.00 – Farewell Dinner	—

4. Faculty Members of the ISN-PORT

The ISN-PORT Neuroscience School featured 16 faculty members, including 6 females and 10 males, representing four countries: Poland, France, Spain, the United States, and Germany.

Faculty Members of the ISN-PORT Neuroscience School 2025

S/N	Name	Gender	Country
1	Prof. Juan Bolaños	M	Spain
2	Prof. Paul Schulz	M	United States
3	Dr. Agnieszka Krzyżosiak	F	Poland
4	Dr. Ali Jawaid	M	Poland
5	Dr. Bartosz Wojtaś	M	Poland
6	Dr. Bartosz Zglinicki	M	Poland
7	Dr. Daria Hajka	F	Poland
8	Dr. Ismail Gbadamosi	M	Poland
9	Dr. Michał Ślęzak	M	Poland
10	Dr. Raluca Contu	F	Poland
11	Dr. Rohit Shrivastava	M	Poland
12	Dr. Róisín McManus	F	Germany
13	Dr. Witold Konopka	M	Poland
14	Weronika Tomaszewska	F	Poland
15	Dr. Paulina Czechowicz	F	Poland
16	Dr. Przemysław Duda	M	Poland

5. Hands-on Workshops

The ISN PORT Neuroscience School featured four hands-on workshops designed to complement the lecture program and provide participants with practical training in contemporary neurobiological methods. The workshops covered key experimental domains from behavioral analysis to transcriptomics, metabolism, and stem cell modeling, offering participants exposure to tools and techniques relevant to studying energy metabolism in neurodegeneration. Due to capacity limitations, each participant was assigned to one hands-on workshop conducted in the afternoons of Day 3 and Day 4 of the school. During the acceptance process, participants indicated two workshops of interest in order of preference, and the final allocation was made based on availability within each session.

- **Workshop 1: Advancing Science with Modern Animal Behavioral Assessment**
  Instructor: Dr. Bartosz Zglinicki
    - This workshop introduced the fundamentals of rodent behavioral screening using open-source, non-commercial tools accessible to all researchers. Participants explored how modern computational approaches enhance reproducibility, reduce bias, and improve insight into behavioral outcomes. Demonstrations included open-source platforms such as SLEAP.ai, Bonsai.rx, and deepOF, providing practical guidance on establishing a cost-effective and unified framework for behavioral neuroscience.

    - ***Participants:*** *Aleksandra Skweres, John Chukwuma Oyem, Minnah Irfan, Klaudia Kuzdrowska, Martyna Ewa Nalepa.*
- **Workshop 2: Big Data Basics – Fundamentals of Transcriptomic Data Analysis**
  Instructor: Dr. Bartosz Wojtaś
    - This workshop offered a step-by-step overview of transcriptomic data analysis from raw sequencing files to downstream interpretation. Topics included preprocessing, normalization, differential gene expression, and pathway enrichment. Participants used curated datasets to practice with a custom R-based workflow, gaining insight into how differential expression analysis bridges molecular data with biological meaning.
    - ***Participants:*** *Luca Zangrando, Anna Kostecka, Daisy May Palmer, Katarzyna Kurecka, Mateusz Drożdż, Natalia Stelmach, Noemi Orsini, Ovinuchi Prince Ejiohuo, Paweł Hanus, Alessandra Longo, Anna Dębska, Agata Małoburska, Sandra Irena Binias*.
- **Workshop 3: Live Metabolic Flux Analysis**
  Instructors: Dr. Paulina Czechowicz
    - This workshop introduced participants to real-time metabolic phenotyping using Seahorse extracellular flux analysis. Sessions covered assay setup, cell preparation, and the principles behind the Glycolysis Stress Test and the Mitochondrial Stress Test. Participants learned about data normalization and interpretation of oxygen consumption and extracellular acidification rates, with emphasis on linking bioenergetic function to cellular health and disease states.
    - ***Participants:*** *Kimberley Joyce Morris, Erkan Metin, Mariem Sallemi, Tansu Gover, Xuanyu Huang.*
- **Workshop 4: From iPSCs to Brain Cells: Modeling Human Neurobiology in a Dish**
  Instructors: Dr. Raluca Contu, Dr. Daria Hajka and Weronika Tomaszewska
    - This workshop provided an introduction to induced pluripotent stem cell (iPSC) based modeling of human neurobiology. Participants explored differentiation strategies from pluripotent cells to neural progenitors and mature brain cell types, observed cultures at different stages, and examined subcellular organelles related to cellular metabolism. The session also discussed common challenges in cell culture and applications in disease modeling, providing a concise overview of modern stem cell technologies in neuroscience.
    - ***Participants:*** *Carolin Annabell Wüst, Marek Kotas, Nicole Kryniecka, Regina Nadalińska, Maria-Cristina Ureche, Zeinab Bedrood.*

6. Accommodation, Transportation, and Catering

International transportation was provided for all participants and faculty members traveling from outside Poland, covering round-trip flights in accordance with ISN funding guidelines. The LOC coordinated flight bookings and reimbursements, ensuring smooth arrival and departure arrangements. Participants traveling from other parts of Poland were provided with train transportation to and from Wrocław, along with detailed travel guidance ahead of the school. Accommodation was arranged for all participants coming from outside Wrocław at the Stara Garbarnia Hotel, located within a short distance of the Łukasiewicz – PORT Institute. Breakfast was provided at the hotel, while lunch, dinner, and continuous coffee breaks were served at the school venue. Local transportation between the hotel and the institute was organized daily by the LOC. A dedicated shuttle bus departed from the hotel each morning at 8:30 am and returned after the day's sessions. Similar arrangements were made for evening events, including the farewell dinner and the city tour on the final day. The coordinated travel, accommodation, and local transport logistics ensured that all participants and faculty could engage fully in the scientific and networking activities of the school.

7. Budget Expenditure

The ISN-PORT Neuroscience School was supported by ISN funding allocated through the ISN.PORT project. A total of 27,200 USD was received from ISN to cover the costs of organizing the school. The final expenditure amounted to 26,674 USD, covering accommodation, international and domestic travel, local transportation, meals, and essential logistical materials. This results in a remaining balance of 526 USD, which will be returned to ISN in accordance with the Schools Initiative guidelines. The detailed budgetary breakdown is presented in the table below.

Category	**Description**	**Amount (USD)**
Accommodation	Hotels for participants and faculty	**7,087**
Travel Expenses	International and domestic flights and train tickets for participants and faculty	**5,897**
Local Transportation	Daily shuttle service and local transfers	**1,966**
Meals & Coffee Breaks	Catering, lunches, dinners, and refreshments	**10,416**
Logistics, PR & Materials	Abstract book, participant kits, printed materials, PR items, and awards	**1,307**
Total Expenditure		**26,674**
Total ISN Funds Received		**27,200**
Amount to Be Returned to ISN		**526**

8. Evaluation and Feedback

At the time of writing this report, 18 participants had responded to the anonymous survey to evaluate the school. The responses indicate a very high level of satisfaction across all aspects of the school, from scientific content and hands-on training to logistics and organization.

- Before the school: 76% of participants rated the pre-school communication and organization as *Excellent*, and 14% as *Very Good*.
- During the school: 73% rated the scientific sessions and activities as *Excellent*, and 18% as *Very Good*.
- Organization and logistics: 56% rated accommodation, catering, and local transport as *Excellent*, and 14% as *Very Good*.
- Overall experience: 71% rated their overall experience as *Excellent*, and 29% as *Very Good*.

Participants particularly valued the hands-on workshops, diverse lectures, and networking opportunities, with many highlighting the interactive environment, scientific depth, and career development workshops as standout features.

When asked *"What aspects of the school were most useful or valuable?"*, participants emphasized a mix of scientific content, networking opportunities, and practical learning. Selected responses included:

- "All aspects. I enjoyed every part of it."
- "The availability of the speakers - we could chat between sessions and get advice on our specific projects."
- "The hands-on workshops, blitz talks, and lectures."

- “Lectures focused on becoming an independent scientist — learning how to present, write, and analyze data.”
- “Keynote lectures and networking with peers.”
- “The diversity and networking opportunities were truly remarkable; our professional network has now expanded beyond borders and continents.”
- “Workshops and lectures on biostatistics, blitz-talk skills, and networking were most valuable.”
- “For me, the most valuable parts were the lectures and workshops, both soft-skills and practical ones.”
- “The school turned out to be one of the best scientific events I’ve ever attended — the workshops and statistics lectures were outstanding.”
- “The opportunity to present my project and receive feedback from both peers and senior scientists.”

When asked *“How would you improve this school?”*, most suggestions focused on logistics and pacing rather than content. Participants proposed:

- extending the school to one full week to allow more rest and reflection;
- setting dedicated time for group proposal preparation instead of working during breaks;
- providing more time for discussion and networking after lectures;
- offering the chance to attend more than one workshop;
- adding a session on work–life balance and women in science;
- and, in a few cases, improving catering variety.

In response to *“Did the school inspire new ideas or collaborations?”*, nearly all participants answered affirmatively. Representative comments included:

- “New ideas! Especially with statistics, grant writing, and communicating science.”
- “I’ve already started applying the statistical and transcriptomic pipeline to my own work.”
- “I met people I will definitely collaborate with in the future.”
- “It gave me a clear idea for my next project.”
- “I’ve discovered how neurobiology could become my doctoral thesis - I returned home with renewed passion.”
- “I saw new techniques and advanced analyses that I’m eager to implement in my research.”
- “I met amazing researchers with whom I plan to collaborate in the future.”

Additional remarks underscored the school’s organization and impact:

- “The school provided an ideal mix of lectures and practical sessions. I learned new analytical techniques and met inspiring scientists.”
- “The organization was outstanding, and the atmosphere encouraged open discussion and collaboration.”
- “It was a perfect platform to connect with other young neuroscientists and potential collaborators.”

Overall, the feedback reflected a highly positive participant experience, highlighting the school’s scientific depth, interactive design, and success in sparking new collaborations and research ideas. Participants overwhelmingly described the ISN-PORT Neuroscience School as a professionally enriching, well-organized, and inspiring initiative that they would strongly recommend to other early-career neuroscientists. In addition to rating various aspects of the program, participants were also asked how they first learned about the ISN-PORT Neuroscience School. As shown in Figure B (top), most respondents learned about the school via the PORT website (27.8%) and LinkedIn (27.8%), followed by supervisors (22.2%), PTBUN meetings (11.1%), and the ISN website (11.1%). In Figure B (bottom), all respondents rated their overall experience as Very Good (38.9%) or Excellent (61.1%).

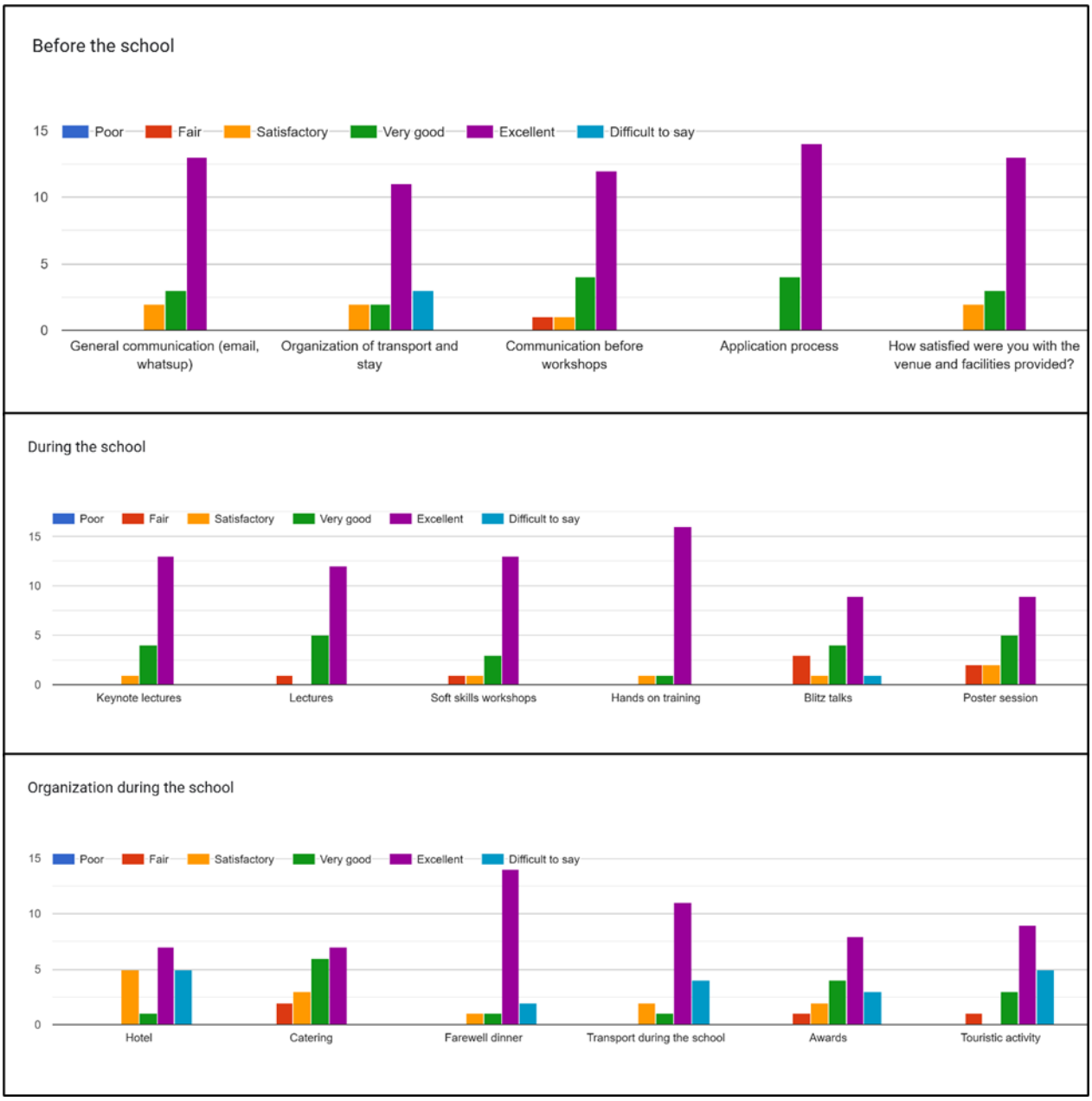


Figure A. Participant evaluation of the ISN-PORT Neuroscience School. *Summary of participant ratings before, during, and after the school. The majority of respondents rated the program as Excellent or Very Good across all categories, including communication, lectures, workshops, logistics, and overall organization.*

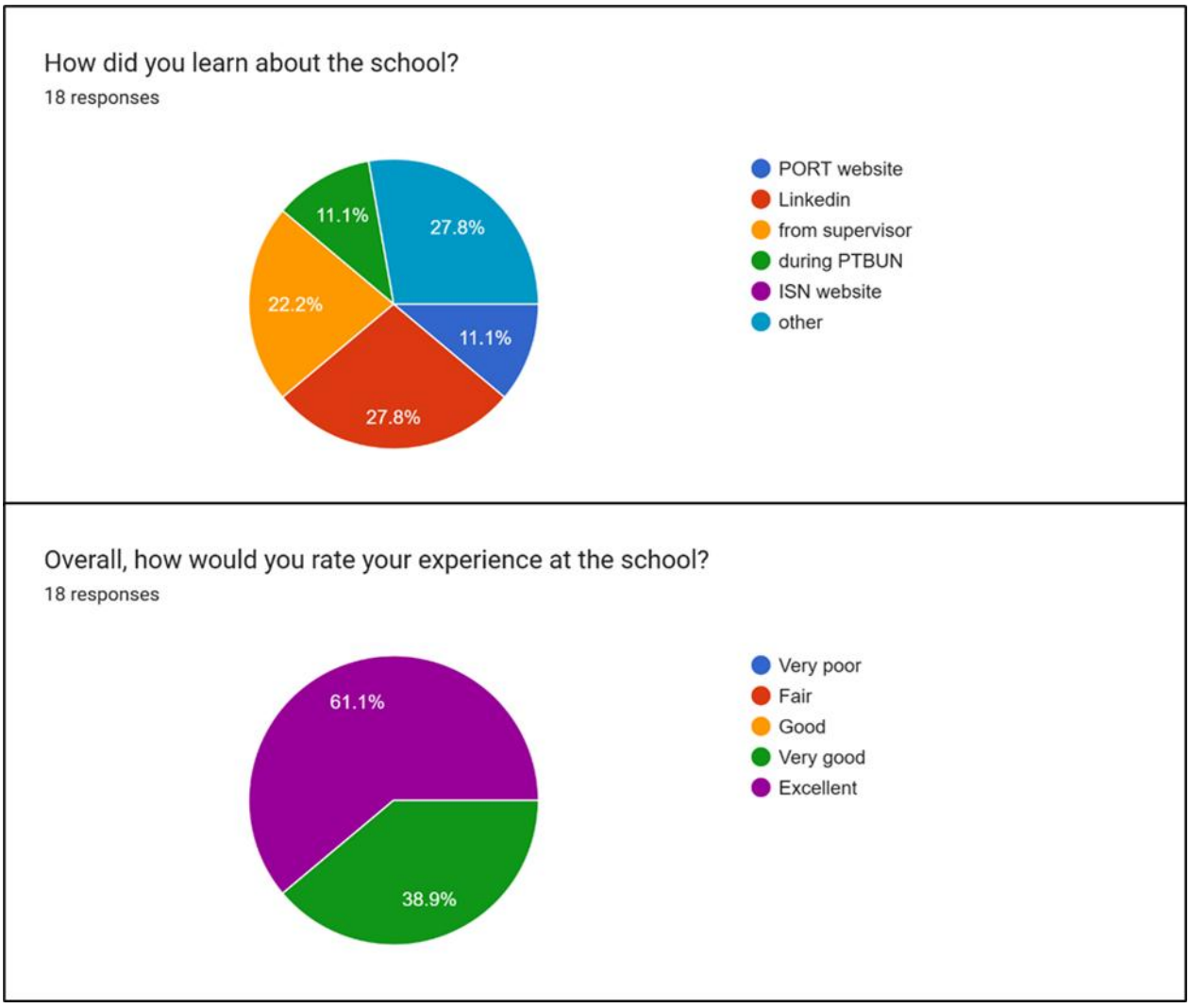


Figure B. Participant awareness and overall experience rating. *Top: Channels through which participants first learned about the ISN-PORT Neuroscience School, showing the primary role of the PORT website and LinkedIn in outreach.Bottom: Overall participant rating of the school experience, with all respondents describing it as Excellent or Very Good.*

9. Photo gallery

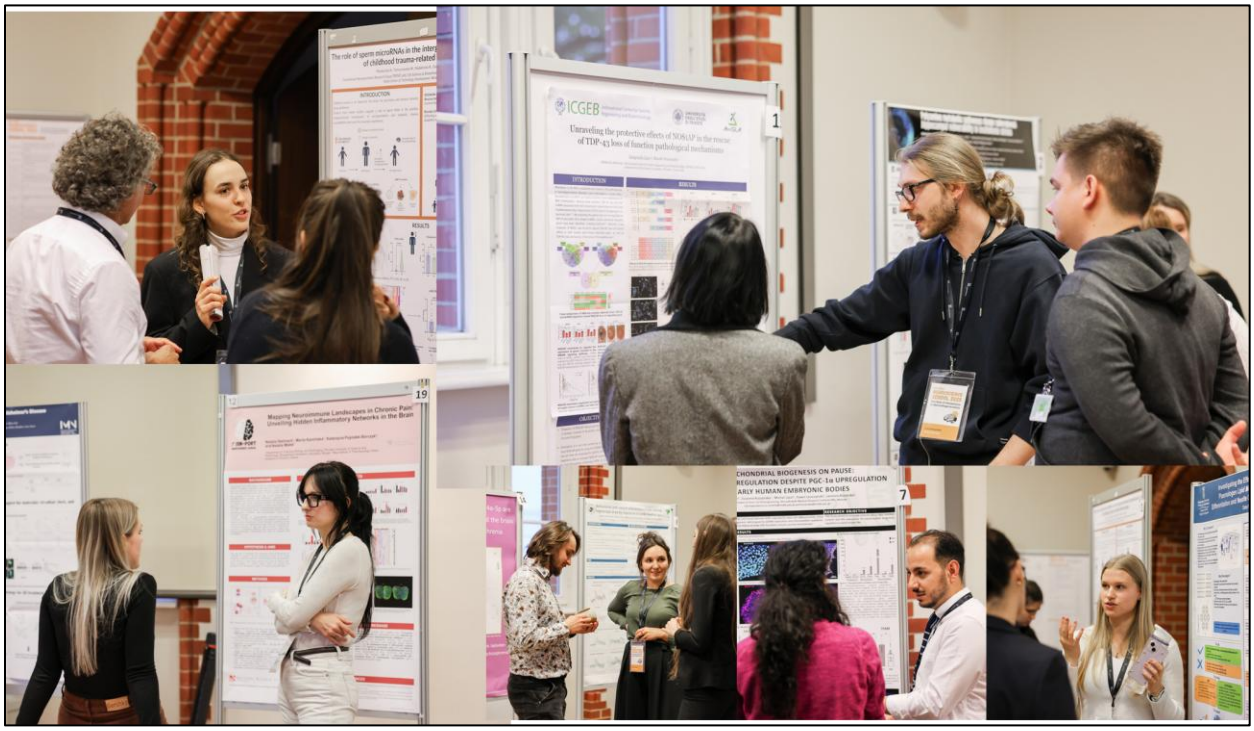
Highlights from day 2

Discussion for group proposal presentation

Highlights from day 3

Highlights from participants' Blitz talk

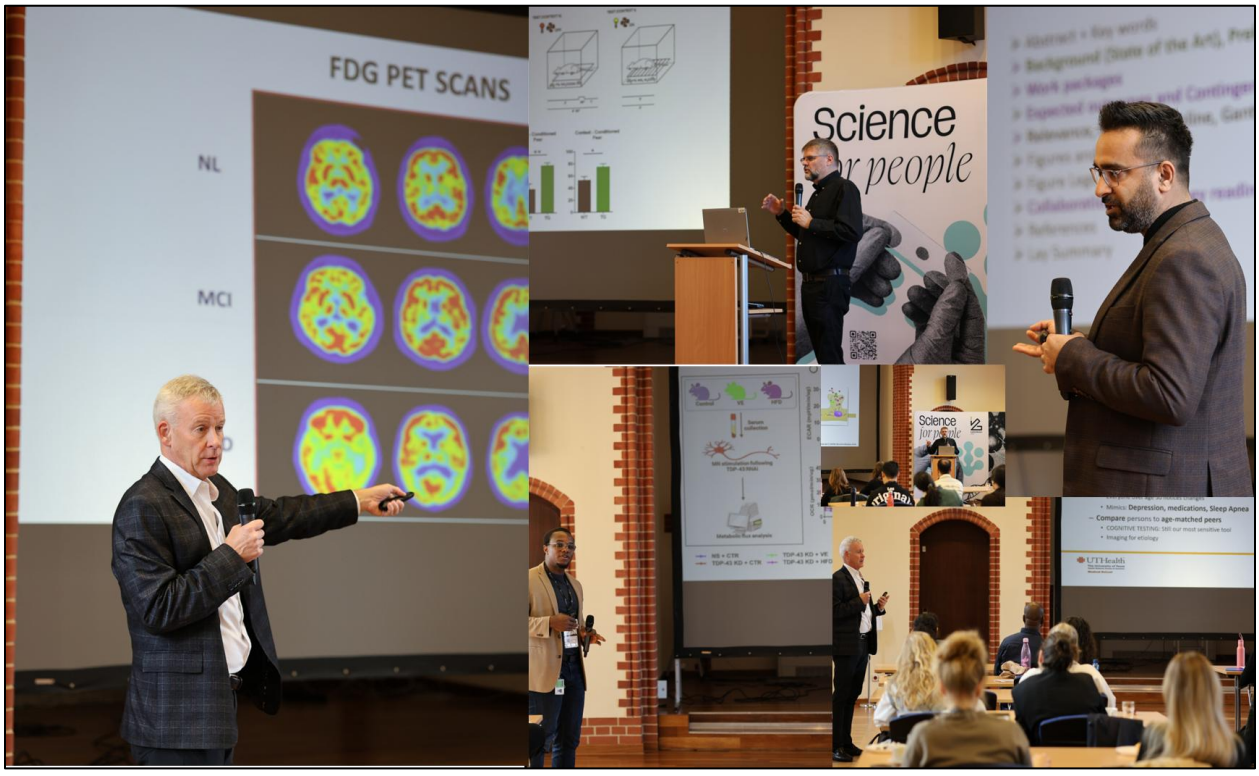
Highlights from poster presentations




ehavioral and neural alterations of the ventral
gmental area by exposure to junk food in rats
MRI Tract Volumetry
as a Predictor of Motor Outcome in Parkinson's Disease

Highlights from hands-on training

Highlights from the clinical workshop and soft-skill training



Highlights from the best presentation awards

Group Photos


ISN-PORT
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School