Dr. Sujay GHOSH – Cover Letter for the chair of the T21 RS Science & Society Committee

Bio sketch (Dr. Sujay Ghosh. Email: sgzoo@caluniv.ac.in; g.sujoy.g@gmail.com)

I am an Associate Professor at the University of Calcutta (Kolkata) — a publicly funded, prestigious and one of the oldest universities in India, and among the most ancient institutions of higher learning in South Asia. Trained as a geneticist, I joined the University as a faculty member in 2013 and went on to establish the Down Syndrome Research Unit. This unit hosts both clinical and pre-clinical research projects focused on the causes and consequences of human trisomy 21, in collaboration with families, healthcare professionals, and clinicians. The outcomes of these studies are regularly disseminated among stakeholders through various outreach programmes. Today, this is the leading Down syndrome research unit in India.

My initial research interest centred on investigating the genetic and epidemiological causes of chromosome 21 nondisjunction in oocytes, a project I pursued under the mentorship of Professor Stephanie Sherman at Emory University, USA. Over time, my research expanded to include genetic studies on congenital heart defects and obstructive sleep apnoea in individuals with Down syndrome. I also initiated the exploration of Indian indigenous medicinal herbs as potential therapeutic bioactive agents against neurodegeneration in Down syndrome, using pre-clinical Drosophila models.

I maintain several national and international research collaborations. Most recently, I have joined the pilot cohort study of the 'Human Trisome Project – Asia Network', upon invitation from the Linda Crnic Institute at the University of Colorado, USA. Through my years of working closely with Indian families having member with Down syndrome, I have come to deeply understand their societal needs and expectations from researchers. In response, I launched community outreach initiatives aimed at sensitising families for better understanding and managing trisomy 21 within the constraints of India's stratified, resource-limited societal framework.

To date, I have organised a cohort of nearly 750 families, encouraging their participation in research and fostering a strong bonding between science and society. My research team also routinely organises charitable healthcare clinics for underprivileged families having Down syndrome across different regions of India. These efforts create mutually beneficial outcomes — families receive essential healthcare services while researchers build stronger, more engaged participant networks.

I have been a member of the Trisomy 21 Research Society (T21RS) since 2018, having attended meetings in Barcelona (2019), Long Beach (2022), and Rome (2024). I was selected to serve on the Scientific Programme Committee for the Rome 2024 meeting. Since 2022, I have also served as a member of the T21RS Science and Society Committee, in addition to my roles in the Communication Working Group and the Down Syndrome Brain Bank Consortium. I have established T21RS, Indian Chapter in 2019 and organized first Indian conference on Down syndrome research in 2020. I have established a tissue bank comprising approximately 1,000 Indian Down syndrome samples. I also led the Indian survey for the Down Syndrome COVID-19 Task Force constituted by T21RS, contributing the second-largest cohort to the global study.

During the pandemic, I organised seven consecutive charitable COVID-19 vaccination clinics in Kolkata, in collaboration with local government authorities, specifically for families with members affected by Down syndrome. These clinics saw the participation of nearly 370 families and were likely the first such initiative in any Asian country.

Beyond academic research, I conduct both academic and non-academic training programmes on Down syndrome for families and professionals — including paediatricians, neurologists, geriatricians, psychiatrists, therapists, and caregivers — with the objective of improving care and management for individuals with special needs. Every year, I organize seminar, webinar, road show to observe world Down syndrome Day in Kolkata, with the financial support from T21RS. I have recently launched the "Indian Trisomy 21 Genome Project", in collaboration with the National Institute for the Empowerment of Persons with Intellectual Disabilities (NIEPID), to investigate genotype-phenotype correlations across diverse ethnic populations in India.

In summary, my professional ethos is firmly rooted in the mission of serving individuals with Down syndrome and their families— through science and beyond. I am confident that my cumulative experiences—shaped through close collaboration with families, clinicians, and fellow researchers—equip me to lead the Science and Society Committee and its initiatives with meaningful and effective contributions.