BIOGRAPHICAL SKETCH/ PROFILE

NAME: Sujay Ghosh. (University of Calcutta. (https://www.caluniv.ac.in/academic/Zoology/Sujay-Ghosh.pdf)

POSITION TITLE: Associate Professor.

INSTITUTIONAL AFFILIATION: Cytogenetic & Genomics and Down Syndrome Research Unit. Department of Zoology. University of Calcutta. Kolkata. WB. India.

POSTAL ADDRESS: Ballygunge Science College Campus. 35 Ballygunge Circular Road. Room no.215. Kolkata. Wb. India. Postal code 700019.

CONTACT: Mobile 9830495243; Email: sgzoo@caluniv.ac.in; g.sujoy.g@gmail.com

EDUCATION/TRAINING: Bachelor (BSc/BS) from the University of Calcutta (1997) with major subject Zoology; Master (MSc./Ms) in Zoology with Genetics specialization from the University of Calcutta (1999); PhD from West Bengal University of Technology (2009); Post Doc training from Emory University (2012) on causes and consequences of human trisomy21 condition.

PROFESSIONAL PROFILE*:* Joined University of Calcutta as Assistant professor in 2013 (substantive and tenured), subsequently promoted to Associate professor Rank (2018).

Research projects supervised

F.PSW-068/10-11(ERO)
University Grant Commission (UGC). India.
10/10/2010-09/10/2012
Ghosh (contact PI)
Epidemiological Study of aneuploidy birth and related risk factors among women of Southern Sundarban area with special reference to Basanti & Gosaba Block, West Bengal, India

BT/PR6931/SPD/11/1416/2012. Department of Biotechnology. Govt. of India.
Ghosh (Co-PI)
10/09/2012-31/08/2015
Prevention of Genetic and Congenital Disorders: Awareness, Counselling, screening and Genetic Education.

F.30-37/2014(BSR)University Grant Commission (UGC-BRS). Government of India.
Ghosh (contact PI)
01/06/2014-31/05/2016
Genetic Polymorphism study to identify the genetic markers for susceptibility to trisomy 21 pregnancy among women.

472 (sanc)/ST/P/S&T/9G-25/2014.Department of Science and Technology. WB. India (WBDST).
Ghosh (contact PI)
21/09/2015-20/09/2018
Prevention of Down Syndrome Birth Through Awareness Campaign, Genetic counseling and Development of Preconceptional DNA Based Diagnostic Markers.

5/10/FR/10/2015-RCH. Indian council for Medical Research (ICMR). India.
Ghosh (contact PI)
15/02/2018-14/2/2022
Study on genetic and epigenetic risk factors of male infertility.

B. Positions, Scientific Appointments and Honors

Positions

2022-present Associate Professor, Cytogenetics and Genomics Research Unit, Department of Zoology,University of Calcutta. Kolkata, India.
2013-2021 Assistant Professor, Cytogenetics and Genomics Research Unit, Department of Zoology,University of Calcutta.Kolkata, India.
2006-2013 Assistant Professor, Department of Zoology, Sundarban Hazi Desarat College. South 24Paraganas. WB. India.
2004-2006 Research Associate. School of Biotechnology. West Bengal University of Technology. Kolkata. India.
2001-2004 Research Fellow. School of Biotechnology. West Bengal University of Technology. Kolkata.

Scientific Appointment

2016-2018 Member Scientist. Research Ethics committee. West Bengal University of Technology, Kolkata. India.
2019-2022 Member, Preclinical committee. Trisomy 21 Research Society (T21RS, Netherlands)
2021-2022 Member Scientist, Down syndrome-COVID19 Task force, T21RS, Netherlands.
2023-current Member, Scientific Program committee. T21RS 5th International conference Rome 2024.
2023-current Member Scientist. Research Ethics Committee. Institute of Reproductive Medicine. Kolkata.
2023-current VGR, American Academy of Developmental Medicine and Dentistry (AADMD), USA.
2025-Current Chairperson, State Research Board of Disability. Govt. of West Bengal. India.

Honors

2024 State award by Department of Women & Child Development And Social Welfare. Govt. of WB.

2023 Delivered invited lecture at Jerome Lejune Foundation, Paris, France as first Asian scientist, Paris, 15th September 2023.

2023 Member, Program Committee, Trisomy 21 Research Society Conference, Rome

2023 Member, Executive Committee, Central Kolkata Welfare Association for Persons with Down Syndrome, Kolkata

2022 Member, Human Research Ethics Committee, Institute of Reproductive Medicine (IRM), Kolkata

2022 Session Chair, 4th International Conference of Trisomy 21 Research Society (T21RS), California, Long Beach

2022 Invited Editor in Chief, Special Issue of Frontier In Genetics: Down Syndrome: Genetic and Epigenetic Influences on this Multi-faceted Condition

2022 Research Excellence Award in Genetics by IMRF, India

2022 Member, Academic Council, Swami Vivekananda University, Barrackpore, WB, India

2021 Member, Down Syndrome-COVID19 Task Force by Trisomy21 Research Society

2019 Chair, Trisomy21 Research Society, Indian Chapter

2019 Member, Preclinical Committee, T21RS

2019 International Scientific Program Award from T21RS

2018 Member, Membership Committee, T21RS

2018 Member of T21RS Communication Work Group

2012 Life Membership, Indian Science Congress Association

2011 Life Membership, Zoological Society, Kolkata

2001 University Grant Commission (UGC), India Fellowship Award

1997 Soroshibala Memorial Award for securing second-top rank in B.Sc. examination at the University of Calcutta

C. Contributions to Science

1. Risk factors of Trisomy 21.

- Etiology of Down Syndrome: Evidence for Consistent Association among Altered Meiotic Recombination, Nondisjunction and Maternal Age Across Populations. **Ghosh S.,** Feingold E., Dey S.K. *American Journal of Medical Genetics* 149A: 1415-1420. **2009**. PMID: 19533770
- Chromosome 21 nondisjunction and Down syndrome birth in Indian cohort: analysis of incidence and etiology from family linkage data. **Ghosh S.,** Bhaumik P., Ghosh P., Dey S.K. *Genetics Research, Cambridge* 92: 189-197. **2010**. PMID: 20667163
- Telomere length is associated with types of chromosome 21 nondisjunction: a new insight into the maternal age effect on Down Syndrome birth. **Ghosh S.,** Feingold E., Chakraborty S., Dey S.K. *Human Genetics* 127: 403-409. **2010.** PMID 26407969.

2. Environmental influences on chromosome 21 nondisjunction and Down syndrome birth.

- Epidemiology of Down syndrome: new insight into the multidimensional interactions among genetic and environmentalrisk factors in the oocyte. **Ghosh S.**, Hong C.S., Feingold E., Ghosh P., Ghosh P., Bhaumik P., Dey S.K.. *American Journal of Epidemiology*.174:1009-10016. **2011.** PMID: 21957181
- Altered incidence of meiotic errors and Down syndrome birth under extreme low socioeconomic exposure in the Sundarban area of India. **Ghosh S.**, Ghosh P., Dey S.K. *Journal of Community Genetics*. 5 (2): 119-124. **2014.** PMID: 23857082
- Maternal Telomere Length and Risk of Down Syndrome: Epidemiological Impact of Smokeless ChewingTobacco and Oral Contraceptive on Segregation of Chromosome 21. Ray A., Hong C.-S., Feingold E., Ghosh P., Ghosh P., Bhaumik P., Dey S., **Ghosh S**. *Public Health Genomics* 19 (1), 11-18. **2016.** PMID: 26439854

3. Genetic susceptibility of recombination error associated with maternal chromosome 21 nondisjunction.

- Polymorphisms of Folate Metabolism Regulators Increase Risk of Meiosis II Nondisjunction of Chromosome 21 in Oocyte. Halder P., Pal U., Ray A., Sarkar S., Dutta S. & **Ghosh S.** *Meta Gene 22:100606;* **2019***. DOI: 10.1016/j.mgene.2019.100606. ISSN: 2214-5400.*
- The etiology of Down syndrome: Maternal MCM9 polymorphisms increase risk of reduced recombination and nondisjunction of chromosome 21 during meiosis I within oocyte. Pal U., Halder P., Ray A., Sarkar S., Datta S., Ghosh P., et al. PLoS Genet 17(3): e1009462. **2021.** PMID: 33750944.
- Understanding etiology of chromosome 21 nondisjunction from gene x environment models. Halder P., Pal U., Ganguly A., Ghosh P., Ray A., Sarkar S., **Ghosh S.** *Nature Scientific report* 1(1):22390. doi: 10.1038/s41598-021-01672-x. **2021.** PMID: 34789805
- Genetic aetiology of Down syndrome birth: novel variants of maternal DNMT3B and RFC1 genes increase riskof meiosis II nondisjunction in the oocyte. Halder P., Pal U., Ganguly A., Ghosh P., Ray A., Sarkar S., **Ghosh S**. *Mol Genet Genomics*

298(1):293-313. **2023.** doi: 10.1007/s00438-022-01981-4. PMID: 36447056.

4. Research related to COVID19 among the individuals with Down syndrome.

- Medical vulnerability of individuals with Down syndrome to severe COVID-19–data from the Trisomy 21 Research Society and the UK ISARIC4C survey. Hüls A., Costa A.C.S., Dierssen M., Baksh R.A., Bargagna S., Baumer N.T., Brandão A.C., Carfi A., Carmona-Iragui M., Chicoine B.A., **Ghosh S.,** Lakhanpaul M., Manso C., Mayer M.A., Ortega M.D.C., de Asua D.R., Rebillat A.S., Russell L.A., Sgandurra G., Valentini D., Sherman S.L., Strydom A. *EClinicalMedicine*, 33:100769.doi: 10.1016/j.eclinm.2021.100769. **2021.** PMID: 3364472.
- COVID-19 Vaccination of Individuals with Down Syndrome—Data from the Trisomy 21 Research Society Survey on Safety, Efficacy, and Factors Associated with the Decision to Be Vaccinated. Hüls A., Feany P.T., Zisman S.I., Costa A.C.S., Dierssen M., Balogh R., Bargagna S., Baumer N.T., Brandão A.C., Carfi A., Chicoine B.A., **Ghosh S**., Lakhanpaul M., Levin J., Lunsky Y., Manso C., Okun E., Real de Asua D., Rebillat A.S., Rohrer T.R., Sgandurra G., Valentini D., Sherman S.L., Strydom A. *Vaccines*, 10(4):530.doi:10.3390/ vaccines10040530. **2022.** PMID: 3545527.
- Trisomy 21 Research Society COVID-19 Initiative Study Group. Differences in clinical presentation, severity, and treatment of COVID-19 among individuals with Down syndrome from India and high-income countries: Data from the Trisomy 21 Research Society survey. Pinku H., Hüls A., Feany P.T., Baumer N., Dierssen M., Bargagna S., Costa A.C., Chicoine B.A., Rebillat A.S., Sgandurra G., Valentini D., Rohrer R.T., Levin J., Lakhanpaul M., Carfì A., Sherman S.L., Strydom A., **Ghosh S.** *J Glob Health* 12:05035. doi: 10.7189/jogh.12.05035. **2022.** PMID: 35932238; PMCID: PMC9356581.
- Halder P, Pal U, Ganguly A, Ghosh P, Malakar MG, Guha N, Gami C, Ghosh S (2024). Impact of COVID-19 Pandemic on Psychosocial Attributes of Indian Families Bearing Child With Down Syndrome: A Survey by Trisomy 21 Research Society (T21RS), Indian Chapter. Asia Pac J Public Health. 2024 May;36(4):394-398. doi: 10.1177/10105395241240954

5. Research Related to Alzheimer Disease and Congenital heart defect In Down syndrome.

- Polymorphic haplotypes of CRELD1 differentially predisposes Down syndrome and euploid individuals to atrioventricular septal defect. Ghosh P., Bhaumik P., **Ghosh S.**, Ozbek U., Feingold E., Maslen C., Sarkar B.N., Pramanik V., Biswas P., Bandhyopadhyay B., Dey S.K. *Am J Med Genet* A158A(11):2843-8.doi: 10.1002/ajmg.a.35626. **2012.** PMID: 22987595
- A Rare Intronic Variation of Presenilin-1 (rs201992645) is Associated with Alzheimer's Disease and Down Syndrome Birth. Bhaumik P., Ghosh P., **Ghosh S.**, Majumdar S., Pal Sarkar S., Ghosh Roy A., Chakraborty A., Dey S.K. *Hereditary Genetics Current Research* 3: 136, **2014.**
- Risk of Atrioventricular Septal Defects in Down syndrome: Association of MTHFR C677T and RFC1A80G polymorphisms in Indian Bengali cohort. Ganguly A., Halder P., Pal U., Sarkar S., Datta S., Pati S., **Ghosh S.** *J Hum Genet Genomics* 5(1): A-10-350-2. doi: 10.52547/jhgg.69. **2022.**
- An insight into Genetic Etiology of Down syndrome associated congenital heart defects. Ganguly A., **Ghosh S**. Medical Res Arch, 11(4). **2023.** doi: https://doi.org/10.18103/mra.v11i4.3737
- Ganguly A, Pal S, Chatterjee S, Das M, Sarkar S, Ghosh S. Rare and novel variant load threshold for KIF7, GJA1 and PDE1C genes elevates the risk of severity of congenital heart defects in Down syndrome. PLoS One. 2025 Jun 26;20(6):e0326566. doi: 10.1371/journal.pone.0326566. PMID: 40569905.

D. Contribution to the societal extension and outreach works

- I have taken leadership role in raising social awareness regarding Down syndrome across the West Bengal and motivate families to participate into the scientific research, so that best scientific and health care benefit could be extended for the their family members having Down syndrome.
- I, along with Central Kolkata Welfare Association for the persons with Down syndrome (CKWAPDS) organize regular charitable health care clinic for children with at University of Calcutta and also organize mobile clinics across different districts of West Bengal to provide health care support to the marginalized section of society.
- I, in support from Department of health, Government of West Bengal, have organized seven dedicated COVID-19 vaccination clinics at SSKM hospital for the persons with disabilities and their family members in the year 2021.
- I take a leadership role in organizing weekly seminars by the expert clinician to provide health care suggestions to the parents and caregivers of persons with Down syndrome.
- I played a pivotal motivating role to establish a dedicated Down syndrome care clinic as Diamond Harbour Medical College Hospital to serve the rural section of our society.