Sumeet Pal Singh — PhD

Ramalingaswami Fellow & Associate Professor, Shiv Nadar Institute of Eminence (SNIoE)
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Personal Details

Name: Sumeet Pal Singh

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Contact Number: +91 7718944538

Institution: Shiv Nadar Institute of Eminence (SNIoE)

Date of Birth: 12 August 1985

Gender: Male

Category: General

Whether differently abled: No

Research Experience

Associate Professor *2025–Ongoing*
Department of Life Sciences, School of Natural Sciences
Shiv Nadar Institute of Eminence (SNIoE) Delhi-NCR, India

Ramalingaswami Fellow *2025–2028*
Department of Life Sciences, School of Natural Sciences
Shiv Nadar Institute of Eminence (SNIoE) Delhi-NCR, India

Assistant Professor (Tenured) *2022–Ongoing*
Institut de Recherche Interdisciplinaire en Biologie Humaine et Moléculaire (IRIBHM)
Université Libre de Bruxelles (ULB) Brussels, Belgium

Supervised Three PhD Graduates

Research Group Leader *2019–2022*
Institut de Recherche Interdisciplinaire en Biologie Humaine et Moléculaire (IRIBHM)
Université Libre de Bruxelles (ULB) Brussels, Belgium

Education / Training

Post-Doctoral Fellow *2014–2019*
DFG Center for Regenerative Therapies Dresden Dresden, Germany

Research Advisor: Nikolay Ninov, Ph.D.
Project title: Cellular and Epigenetic Dynamics in β-cells during Development, Regeneration and Diabetes.

Post-Doctoral Fellow *2013–2014*
Max Planck Institute of Molecular Cell Biology and Genetics Dresden, Germany
Research Advisor: Jochen Rink, Ph.D.
Project title: Live Imaging Stem Cell Dynamics during Growth and Regeneration.

PhD *2008–2013*
Duke University Durham, USA
Research Advisor: Kenneth D. Poss, Ph.D.
Thesis Title: Cellular and Molecular Determinants of Zebrafish Fin Osteoblast Regeneration.

B. Tech., Biological Sciences and Bioengineering *2004–2008*
Indian Institute of Technology (IIT) Kanpur, India
Grade: 8.7 / 10

Lab's Vision

The Singh Lab focusses on regenerative and stress biology. We are interested in understanding the ability of organs to recover from injuries and stress. For example, we are able to heal a cut to our finger, even if it happens multiple times. Our blood regenerates after blood donation within a day or two. In ancient Greek mythology, Prometheus was sentenced to having half of his liver eaten by an eagle every day, but the liver would regenerate during the night – highlighting the almost infinite regenerative capacity of the liver. We are fascinated by such robustness in regenerative systems - which are a hallmark of a dynamic biological system.

To understand the robustness of biological systems, we explore two main themes: **plasticity and adaptation**.

For our experimental model, we use Zebrafish, which possess amazing regenerative abilities. It is able to recover from complete loss of bone cells or pancreatic β-cells. We utilize its super-natural regenerative ability to explore our themes, with the hope that the lessons we learn can be translated to improve outcomes of human injury.

Contribution to Science

1. **Cellular plasticity during regeneration**

   During my doctoral studies, we focused on the cellular source of bone-synthesizing osteoblast cells in the zebrafish fin. We developed a model for depleting the osteoblast population using a cell-specific and inducible ablation strategy. This revealed that the contribution of osteoblasts to bone and fin regeneration was redundant, and that the mesenchymal fibroblasts could contribute in their absence, demonstrating cellular plasticity during regeneration (1a).

   As a post-doctoral researcher, we embarked on understanding the plasticity in the pancreatic β-cell regeneration (1b). Zebrafish, can recover from complete β-cell destruction. In contrast, human β-cells do not recover after massive death, which, in turn, leads to Type 1 or Type 2 diabetes. For this, we carried out single-cell mRNA-Sequencing (scRNASeq) of the endocrine islets after β-cell ablation. This led to an intriguing observation that suggested plasticity within the endocrine population. We documented a new progenitor source for β-cells. Specifically, we observed a sub-population of the pancreatic δ-cells was capable of trans-differentiating into β-cells (1c).

More recently, our lab demonstrated cellular plasticity in the liver, showing that cholangiocytes can contribute to hepatocyte regeneration after partial liver injury in zebrafish. This work combined lineage tracing, single-cell transcriptomics, and imaging to reveal how non-hepatocyte populations participate in liver regrowth during periods of rapid growth (1d).

1a. **Singh SP**, Holdway JE, Poss KD.
Regeneration of amputated zebrafish fin rays from de novo osteoblasts.

Developmental Cell: Apr 17; doi:10.1016/j.devcel.2012.03.006 *2012*

1b. **Singh SP**, Janjuha S, Hartmann T, Kayisoglu O, Konantz J, Birke S, Murawala P, Alfar EAA, Murata K, Eugster A, Tsuji N, Morrissey ER, Brand M, Ninov N.
Different developmental histories of beta-cells generate functional and proliferative heterogeneity during islet growth.

Nature Communications: September 22; doi:10.1038/s41467-017-00461-3 *2017*

1c. **Singh SP***, Chawla P*, et al.
`*Equal contribution`
A single-cell atlas of de novo beta-cell regeneration reveals the contribution of hybrid beta/delta cells to diabetes recovery in zebrafish.

Development: January 28; doi:10.1242/dev.199853 *2022*

1d. Eski SE, Mi J, Pozo-Morales M, Hovhannisyan GG, Perazzolo C, Manco R, Ez-Zammoury I, Barbhaya D, Lefort A, Libert F, Marini F, Gurzov EN, Andersson O, **Singh SP**.
Cholangiocytes contribute to hepatocyte regeneration after partial liver injury during growth spurt in zebrafish.

Nature Communications: June 06; doi:10.1038/s41467-025-60334-y *2025*

2. **Adaptation to stress (starvation) response**

A major driver of evolutionary selection is the adaptation to starvation as animals in the wild face uncertain food supply. Adaptation to periods of famine shape physiology in a variety of species: fatty liver in migratory birds, high blood sugar in seals and insulin resistance (IR) in hibernating bears. Work from our lab has demonstrated that the zebrafish liver accumulates lipid droplets in response to starvation (2a). Starvation-induced fatty liver, or hepatic steatosis, creates an energy reservoir that allows survival during long-term caloric deprivation. However, the fat accumulation in the liver damages the organ. In a collaborative project, we discovered that Mexican cavefish, a model of starvation resistance, evolved protection from starvation-induced liver damage through reduction of fatty acid uptake regulated by FATP2, a mechanism conserved through 400 million years of animal evolution (2b). We continue to investigate this "natural" mode of liver steatosis to uncover the mechanisms underlying its induction and resolution, and its relationship to liver atrophy. Other metabolic stressors, such as high-fat diet and alcohol both cause fatty liver, medically referred to as Metabolic-associated Fatty Liver (MAFL) and Alcoholic Fatty Liver (AFL), respectively. As steatosis is the first step towards liver disease, we are currently applying our findings to these clinically significant contexts.

2a. Pozo Morales M, Garteizgogeascoa I, Perazzolo C, **Singh SP**.
In vivo imaging of calcium dynamics in zebrafish hepatocytes.

Hepatology: March 01; doi:10.1002/hep.32663 *2023*

2b. Pozo-Morales M*, Cobham AE*, Centola C, McKinney MC, Liu P, Perazzolo C, Lefort A, Libert F, Bai H, Rohner N§, **Singh SP§**.
*Equal contribution
§Co-Corresponding Author
Starvation resistant cavefish reveal conserved mechanisms of starvation-induced hepatic lipotoxicity.

Life Science Alliance: March 11; doi:10.26508/lsa.202302458 *2024*

Grants Awarded

ANRF – Advanced Research Grant *2026*
From Adaptation to Pathology: Calcium Signaling as a Molecular Switch in Alcohol-Induced Liver and Pancreatic Injury.

ANRF – Seminar/Symposia Scheme *2026*
Cellular and Molecular Mechanisms of Development and Regeneration 2026.

Ramalingaswamy Re-Entry Fellowship – DBT *2025*
Regulators of cellular plasticity during organ regeneration.

Research Credit (CDR) – FNRS *2025*
Regulation of starvation-induced fatty liver by endo-lysosomal calcium stores.

Research Credit (PDR) – FNRS *2024*
Regulators of cellular plasticity during organ regeneration.

Fondation Wiener – Anspach (FWA) *2023*
Sphingolipid dynamics during starvation-induced liver damage.

Jaumotte-Demoulin Foundation *2023*
Metabolic adaptation to nutritional deprivation.

Research Credit (CDR) – FNRS *2022*
Learning from the extreme: Starvation induces non-alcoholic fatty liver in zebrafish, which is resolved by mobilization of endo-lysosomal calcium stores.

Jaumotte-Demoulin Foundation *2021*
Metabolic adaptation to nutritional deprivation.

MISU-PROL FNRS Fellow *2021–2022*
Regulators of cellular plasticity in endocrine organs.

Jaumotte-Demoulin Foundation *2020*
Regulators of metabolic cell death.

ULB ERC Support *2020*
Financial support for reaching second start of the ERC Competition.

MISU FNRS Fellow *2019–2021*
How multi-tasking segregates homogenous cellular societies.

Deutsche Forschungsgemeinschaft (DFG) Research Fellowship (Declined) *2019–2021*
How multi-tasking segregates homogenous cellular societies.

EFSD/Lilly Young Investigator Research Award *2018–2019*
The role of tetraspanin-7, an islet autoantigen, in regulating beta-cell functional heterogenity

CRTD Postdoctoral Seed Grant *2016–2017*
Dissecting functional heterogeneity in β-cells using Single-cell RNA-Seq

CRTD Postdoctoral Seed Grant *2015–2016*
Inducible Cas9/CRISPR for Conditional Gene Knockouts in Vertebrate Regenerative Model Systems

Publications

Original Research Articles

1. John N, Fleming T, Kolb J, Lyraki O, Vásquez-Sepúlveda S, Parmar A, Kim K, Tarczewska M, Gupta P, Singh K, Marini F, **Singh SP**, Tsata V, Falk S, Franze K, Guck J, Wehner D.
Biphasic inflammation control by dedifferentiated fibroblasts enables axon regeneration after spinal cord injury in zebrafish.

   Cell Reports: November 25; doi:10.1016/j.celrep.2025.116469 *2025*

2. Ha HT, Kosmynina S, Verocq A, Ozen K, Tekia I, Bussy H, Ramirez M, Sabbah D, Goemans C, Vandenbempt V, Gurzov EN, **Singh SP**, Baeyens N.
Human Atlas of Tooth Decay Progression: Identification of Cellular Mechanisms Driving the Switch from Dental Pulp Repair Toward Irreversible Pulpitis.

   Advanced Science: October 31; doi:10.1002/advs.202510096 *2025*

3. Li A, Gilglioni EH, St-Pierre-Wijckmans W, Hosseinzadeh L, Veyrat-Durebex C, **Singh SP**, Coppari R, Bakiri L, Gurzov EN.
Nutritional c-Fos Induction Rewires Hepatic Metabolism and Can Promote Obesity-Associated Hepatocellular Carcinoma.

   Advanced Science: September 29; doi:10.1002/advs.202509755 *2025*

4. Eski SE, Mi J, Pozo-Morales M, Hovhannisyan GG, Perazzolo C, Manco R, Ez-Zammoury I, Barbhaya D, Lefort A, Libert F, Marini F, Gurzov EN, Andersson O, **Singh SP**.
Cholangiocytes contribute to hepatocyte regeneration after partial liver injury during growth spurt in zebrafish.

   Nature Communications: June 06; doi:10.1038/s41467-025-60334-y *2025*

5. Akhtar MN, Hnatiuk A, Delgadillo-Silva L, Geravandi S, Sameith K, Reinhardt S, Bernhardt K, **Singh SP**, Maedler K, Brusch L, Ninov N.
Developmental beta-cell death orchestrates the islet's inflammatory milieu by regulating immune system crosstalk.

   The EMBO Journal: January 06; doi:10.1038/s44318-024-00332-w *2025*

6. Gilglioni EH, Li A, Wijckmans WS-P, ShenT-K, Perez-Chavez I, Hovhannisyan G, Lisjak M, Negueruela J, Vandenbempt V, Bauza-Martinez J, Herranz JM, Ezerina D, Demine S, Feng Z,

Vignane T, Otero-Sanchez L, Lambertucci F, Prasnicka A, Deviere J, Hay DC, Encinar JA, **Singh SP**, Messens J, Filipovic MR, Sharpe HJ, Trepo E, Wu W, Gurzov EN.
PTPRK regulates glycolysis and de novo lipogenesis to promote hepatocyte metabolic reprogramming in obesity.

Nature Communications: November 04; doi:10.1038/s41467-024-53733-0 *2024*

7. Delgadillo-Silva LF, Tasöz E, **Singh SP**, Chawla P, Georgiadou E, Gompf A, Rutter GA, Ninov N.
Optogenetic β cell interrogation in vivo reveals a functional hierarchy directing the Ca2+ response to glucose supported by vitamin B6.

Science Advances: June 28; doi:10.1126/sciadv.ado4513 *2024*

8. Pozo-Morales M*, Cobham AE*, Centola C, McKinney MC, Liu P, Perazzolo C, Lefort A, Libert F, Bai H, Rohner N§, **Singh SP§**.
*Equal contribution
§Co-Corresponding Author
Starvation resistant cavefish reveal conserved mechanisms of starvation-induced hepatic lipotoxicity.

Life Science Alliance: March 11; doi:10.26508/lsa.202302458 *2024*

9. Ibneeva L, **Singh SP**, Sinha A, Eski SE, Wehner R, Rupp L, Perez-Valencia JA, Gerbaulet A, Reinhardt S, Wobus M, Bonin M, Sancho J, Lund FE, Dahl A, Schmitz M, Bornhaeuser M, Chavakis T, Wielockx B, Grinenko T.
CD38 promotes hematopoietic stem cell dormancy via c-Fos.

PLoS Biology: February 29; doi:10.1371/journal.pbio.3002517 *2024*

10. Vandenbempt V, Eski SE, Brahma MK, Li A, Negueruela J, Bruggeman Y, Demine S, Xiao P, Cardozo AK, Baeyens N, Martelotto LG, **Singh SP**, Mariño E, Gysemans C, Gurzov EN.
HAMSAB diet ameliorates dysfunctional signaling in pancreatic islets in autoimmune diabetes.

iScience: January 19; doi:10.1016/j.isci.2023.108694 *2024*

11. Yu Q, Walters HE, Pasquini G, **Singh SP**, León-Periñán D, Petzold A, Kesavan P, Subiran C, Garteizgogeascoa I, Knapp D, Wagner A, Bernardos A, Alfonso M, Nadar G, Dahl A, Busskamp V, Martínez-Máñez R, Yun MH.
Cellular senescence modulates progenitor cell expansion during axolotl limb regeneration.

Developmental Cell: October 24; doi:10.1016/j.devcel.2023.09.009 *2023*

12. Valiente-Gabioud A, Garteizgogeascoa I, Idziak A, Fabritius A, Angibaud J, Basquin J, Nägerl UV, **Singh SP**, Griesbeck O.
Fluorescent Sensors for Imaging Interstitial Calcium.

Nature Communications: October 05; doi:10.1038/s41467-023-41928-w *2023*

13. Pozo Morales M, Garteizgogeascoa I, Perazzolo C, **Singh SP**.
In vivo imaging of calcium dynamics in zebrafish hepatocytes.

Hepatology: March 01; doi:10.1002/hep.32663 *2023*

14. Romitti M, Tourneur A, De Faria Da Fonseca B, Doumont G, Gillotay P, Liao X-H, Eski S, E, Van Simaeys G, Chomette L, Lasolle H, Monestier O, Figini Kasprzyk D, Detours V, **Singh SP**, Goldman S, Refetoff S, Costagliola S.
Transplantable human thyroid organoids generated from embryonic stem cells to rescue hypothyroidism.

Nature Communications: November 17; doi:10.1038/s41467-022-34776-7 *2022*

15. McLaughlin K, Acreman S, Nawaz S, Cutteridge J, Clark A, Knudsen JG, Denwood G, Spigelman AF, Manning Fox JE, **Singh SP**, MacDonald PE, Hastoy B, Zhang Q.
Loss of tetraspanin-7 expression reduces pancreatic β-cell exocytosis Ca2+ sensitivity but has limited effect on systemic metabolism.

Diabetic Medicine: October 20; doi:10.1111/dme.14984 *2022*

16. Xiao P, Takiishi T, Moretti Violato N, Licata G, Dotta F, Sebastiani G, Marselli L, **Singh SP**, Sze M, Van Loo G, Dejardin E, Gurzov EN, Cardozo AK.
NF-kappaB-inducing kinase (NIK) is activated in pancreatic beta-cells but does not contribute to the development of diabetes.

Cell Death & Disease: May 19; doi:10.1038/ s41419-022-04931-5 *2022*

17. Nahaboo W, Eski SE, Despin-Guitard E, Vermeersch M, Saykali B, Monteyne D, Gabriele S, Magin TM, Schwarz N, Leube RE, Zwijsen A, Perez-Morga D, **Singh SP**, Migeotte I.
Keratin filaments mediate the expansion of extra-embryonic membranes in the post-gastrulation mouse embryo.

EMBO Journal: March 10; doi:10.15252/embj.2021108747 *2022*

18. **Singh SP***, Chawla P*, Hnatiuk A, Kamel M, Silva LD, Spanjard B, Eski SE, Janjuha S, Olivares P, Kayisoglu O, Rost F, Blasche J, Krankel A, Petzold A, Kurth T, Reinhardt S, Junker JP, Ninov N.
*Equal contribution
A single-cell atlas of de novo beta-cell regeneration reveals the contribution of hybrid beta/delta cells to diabetes recovery in zebrafish.

Development: January 28; doi:10.1242/dev.199853 *2022*

19. Elvira B, Vandenbempt V, Bauza-Martinez J, Crutzen R, Negueruela J, Ibrahim H, Winder M, Brahma M, Vekeriotaite B, Martens P-J, **Singh SP**, Rossello F, Lybaert P, Otonkoski T, Gysemans C, Wu W, Gurzov E.
PTPN2 regulates the interferon signalling and endoplasmic reticulum stress response in pancreatic beta-cells in autoimmune diabetes.

Diabetes: January 19; doi:10.2337/db21-0443 *2022*

20. Romitti M§*, Eski SE*, Fonseca BF, **Singh SP§**, Costagliola S§.
*Equal contribution
§Co-Corresponding Author
Single-cell trajectory inference guided enhancement of thyroid maturation in vitro using TGF-beta inhibition.

Frontiers in Endocrinology: May 31; doi:10.3389/fendo.2021.657195 *2021*

21. Pronobis MI, Zheng S, **Singh SP**, Goldman JA, Poss KD.
In vivo proximity labeling identifies cardiomyocyte protein networks during zebrafish heart regeneration.

eLife: March 25; doi:10.7554/eLife.66079 *2021*

22. Gillotay P, Shankar MP, Haerlingen B, Eski SE, Pozo-Morales M, Garteizgogeascoa I, Reinhardt S, Kraenkel A, Blaesche J, Petzold A, Ninov N, Kesavan G, Lange C, Brand M, Detours V,

Costagliola S[§], **Singh SP[§]**.
[§]Co-Corresponding Author
Single-cell transcriptome analysis reveals thyrocyte diversity in the zebrafish thyroid gland.

EMBO Reports: November 06; doi:10.15252/embr.202050612 *2020*

Featured as Cover Image

23. Mathiah N, Despin-Guitard E, Stower M, Nahanoo W, Eski SE, **Singh SP**, Srinivas S, Migeotte I
Asymmetry in the frequency and position of mitosis in the mouse embryo epiblast at gastrulation.

EMBO Reports: October 05; doi:10.15252/embr.202050944 *2020*

24. Eski SE, Dubois C, **Singh SP[§]**.
[§]Corresponding Author
Nuclei Isolation from Whole Tissue using a Detergent and Enzyme-Free Method.

JoVE: June 24; doi:10.3791/61471 *2020*

25. Chen LS, **Singh SP**, Mueller G, Bornstein SR, Kanczkowski W.
Transcriptional analysis of sepsis-induced activation and damage of the adrenal microvascular cells.

Frontiers in Endocrinology: January 22; doi:10.3389/fendo.2019.00944 *2020*

26. Salem V, Silva LD, Suba K, Georgiadou E, Gharavy SNM, Akhtar N, Martin-Alonso A, Gaboriau DCA, Rothery SM, Stylianides T, Carrat G, Pullen TJ, **Singh SP**, Hodson DJ, Leclerc I, Shapiro AMJ, Marchetti P, Briant LJB, Distaso W, Ninov N, Rutter GA.
Leader beta-cells coordinate Ca2+ dynamics across pancreatic islets in vivo.

Nature Metabolism: June 14; doi:10.1038/s42255-019-0075-2 *2019*

27. Chen LS, **Singh SP**, Schuster M, Grinenko T, Bornstein SR, Kanczkowski W.
RNA-seq analysis of LPS-induced transcriptional changes and its possible implications for the adrenal gland dysregulation during sepsis.

J. Steroid Biochem. Mol. Biol: November 29; doi:10.1016/j.jsbmb.2019.04.009 *2019*

28. **Singh SP[§]**, Janjuha S, Chaudhuri S, Reinhardt S, Dietz S, Eugster A, Bilgin H, Korkmaz S, Zararsiz G, Ninov N, Reid JE.
[§]Corresponding Author
Machine learning based classification of cells into chronological stages using single-cell transcriptomics.

Scientific Reports: November 21; doi:10.1038/s41598-018-35218-5 *2018*

29. Cox BD, Simone AD, Tornini VA, **Singh SP**, Talia SD, Poss KD.
In Toto imaging of dynamic osteoblast behaviors in regenerating skeletal bone.

Current Biology: November 29; doi:10.1016/j.cub.2018.10.052 *2018*

30. Janjuha S*, **Singh SP***, Ninov N.
*Equal contribution
Analysis of Beta-cell Function Using Single-cell Resolution Calcium Imaging in Zebrafish Islets.

JoVE: July 03; doi:10.3791/57851 *2018*

31. Janjuha S*, **Singh SP***, Tsakmaki A, Gharavy SNM, Murawala P, Konantz J, Birke S, Hodson DJ, Rutter GA, Bewick GA, Ninov N.
*Equal contribution
Age-related islet inflammation marks the proliferative decline of pancreatic beta-cells in zebrafish.

eLife: April 06; doi:10.7554/eLife.32965 *2018*

32. **Singh SP**, Janjuha S, Hartmann T, Kayisoglu O, Konantz J, Birke S, Murawala P, Alfar EAA, Murata K, Eugster A, Tsuji N, Morrissey ER, Brand M, Ninov N.
Different developmental histories of beta-cells generate functional and proliferative heterogeneity during islet growth.

Nature Communications: September 22; doi:10.1038/s41467-017-00461-3 *2017*

33. Fei JF, Knapp D, Schuez M, Murawala P, Zou Y, **Singh SP**, Drechsel D, Tanaka EM.
Tissue and time-directed electroporation of CAS9 protein-gRNA complexes in vivo yields efficient multigene knockout for studying gene function in regeneration.

npj Regenerative Medicine: June 1; doi:10.1038/npjregenmed.2016.2 *2016*

34. **Singh SP**, Holdway JE, Poss KD.
Regeneration of amputated zebrafish fin rays from de novo osteoblasts.

Developmental Cell: Apr 17; doi:10.1016/j.devcel.2012.03.006 *2012*

35. Wang JH, Panáková D, Kikuchi K, Holdway JE, Gemberling M, Burris JS, **Singh SP**, Dickson AL, Lin YF, Sabeh MK, Werdich AA, Yelon D, Macrae CA, Poss KD.
The regenerative capacity of zebrafish reverses cardiac failure caused by genetic cardiomyocyte depletion.

Development: Aug 15; doi:10.1242/dev.068601 *2011*

Review Article

36. **Singh SP**, Ninov N.
The triumvirate of beta-cell regeneration: Solutions and bottlenecks to curing diabetes.

Int. J. Dev. Biol.: June 28; doi: 10.1387/ijdb.180067nn *2018*

Book Chapter

37. Pozo Morales M, **Singh SP**
Computational Analysis of Calcium Flux Data Using R.

Calcium Signaling: Methods and Protocols

Editor: Gorvin, Caroline M. Publisher: Springer US. doi:10.1007/978-1-0716-4164-4_20 *2024*

38. Garteizgogeascoa I, **Singh SP**
Fluorescent Tagging of Endogenous FOXO for Live Imaging and Pull-Down Assays.

FOXO Transcription Factors: Methods and Protocols

Editor: Link, Wolfgang. Publisher: Springer US. doi:10.1007/978-1-0716-4217-7_13 *2024*

39. **Singh SP**, Ninov N.
Multicolor labeling and tracing of pancreatic beta-cell proliferation in zebrafish.
Animal Models of Diabetes: Methods and Protocols
Editor: King, Aileen. Publisher: Springer US. doi:10.1007/978-1-0716-0385-7_12 *2020*

Editorial

40. Costagliola S, **Singh SP**.
Emerging Technologies in Thyroid Biology: Pushing the Frontiers of Thyroid Research.
Molecular and Cellular Endocrinology.: May 01; doi:10.1016/j.mce.2023.111912 *2023*

Preprints

41. Sharma A, Jakhar D, Juneja P, Sevak JK, Vasudewan A, Sharma S, Kaur I, Gautham V, Pamecha V, Tripathi DM, Sarin SK, **Singh SP**, Kaur S.
Wnt7a is a Novel Lymphangiocrine Factor Driving Cholangiocyte Proliferation during Liver Regeneration.
bioRxiv: October 17; doi:10.1101/2025.10.16.682805 *2025*

42. Magnani E, Macchi F, Randic T, Chen C, Madakashira B, Ranjan S, Eski SE, **Singh SP**, Sadler KC.
Epigenetic Disordering Drives Stemness, Senescence Escape and Tumor Heterogeneity.
bioRxiv: December 29; doi:10.1101/2024.12.29.629346 *2024*

43. Garteizgogeascoa I, **Singh SP**.
A zebrafish knock-in reporter line for the Foxo1a transcription factor.
bioRxiv: July 17; doi:10.1101/2023.07.17.548093 *2023*

44. De Faria Da Fonseca B, Barbee C, Romitti M, Eski S E, Gillotay P, Monteyne D, Perez-Morga D, Refetoff S, **Singh SP**, Costagliola S.
Foxe1 orchestrates thyroid and lung cell lineage divergence in mouse stem cell-derived organoids.
bioRxiv: May 16; doi:10.1101/2022.05.16.492074 *2022*

45. Gillotay P, Romitti M, Dassy B, Haerlingen B, Parakkal MS, De Faria Da Fonseca B, Panos Z G, **Singh SP**, Gerasimos S, Costagliola S.
Nrf2 promotes thyroid development and hormone synthesis.
bioRxiv: March 01; doi:10.1101/2022.02.27.482168 *2022*

Conference Talks / Seminars

Co-organiser: Cellular & Molecular Mechanisms of Development and Regeneration Delhi-NCR, India
Shiv Nadar Institution of Eminence (SNIoE) *2026*

Indian Institute of Science Education and Research (IISER), Berhampur Berhampur, India
Indian Society of Developmental Biologists (InSDB)

- International Society of Differentiation (ISD) Joint Meeting *2025*

Indian Institute of Technology (IIT), Hyderabad Hyderabad, India
Pattern formation in physical and biological systems *2025*

7th European Zebrafish Principal Investigators Meeting Paris, France
Cell Plasticity during liver regeneration *2025*

Seminar: Institute of Biochemistry and Molecular Biology (iBMB) Ulm, Germany
Cell Plasticity during liver regeneration *2024*

16th Swiss Zebrafish Meeting Fribourg, Switzerland
Cell Plasticity during liver regeneration *2024*

Cellular and Molecular Mechanisms of Development and Regeneration Delhi-NCR, India
Cell Plasticity during liver regeneration *2024*

Seminar: Institut de Recherche Expérimentale et Clinique (IREC) Woluwé, Belgium
Cellular plasticity in liver regeneration *2023*

Seminar: Indian Institute of Technology (IIT), Kanpur Kanpur, India
Mechanisms of starvation resistance *2023*

Seminar: Indian Institute of Technology (IIT), Delhi New Delhi, India
Mechanisms of starvation resistance *2023*

Seminar: Biology Department, KU Leuven Leuven, Belgium
Resolution of hepatic steatosis in zebrafish *2022*

Belgium Society for Cell and Developmental Biology Brussels, Belgium
Resolution of hepatic steatotsis in zebrafish *2022*

Helmholtz Zentrum München Webinar
Preprint publishing and evolving the peer-review process *2022*

6th European Zebrafish PI Meeting Dresden, Germany
Speaker: Single-cell interactome

Chair: Metabolism and Endocrinology *2022*

43rd Annual Meeting of the European Thyroid Association Milano, Italy*
Zebrafish as a model of human thyroid disorders *2021*

Seminar: University of Wisconsin–Madison Madison, USA*
Single-cell endocrinology *2021*

EMBL-EBI Training with Europe PMC Webinar
Preprints 101 for authors *2021*

3rd Italian Zebrafish Meeting (ZFIM) Napoli, Italy*
Thyroid Macrophage Interaction *2021*

Seminar: New York University Abu Dhabi Abu Dhabi, UAE*
Single-cell endocrinology *2021*

Meeting Co-Host: Belgian Society of Physiology and Pharmacology Online*
Spring Meeting *2021*

26th Japanese Medaka and Zebrafish Meeting Chiba, Japan*
Thyroid Morphogenesis *2020*

4th Challenges in Computational Biology meeting Mainz, Germany*
Single Cell Data Analysis *2020*

*In-person meeting moved online due to COVID19

Interdisciplinary Scientific Seminars - ULB Brussels, Belgium
Cooperative Behaviour *2020*

Applied Bioinformatics in Life Sciences (3rd edition) Leuven, Belgium
Machine Learning in Aging *2020*

2nd International Biostatistics Congress Antalya, Turkey
Bioinformatics *2017*

11th CRTD Summer Conference Dresden, Germany
Regenerative Medicine *2017*

EMBO Conference Paestum (Salerno), Italy
The molecular and cellular basis of regeneration and tissue repair *2016*

MPI-CBG 15th Anniversary Symposium Dresden, Germany
Development and Regeneration *2016*

10th CRTD Summer Conference Dresden, Germany
Regenerative Medicine *2016*

Helmholtz Thementag on Diabetes München, Germany
Helmholtz Zentrum Diabetes Science day *2017*

9th CRTD Summer Conference Dresden, Germany
Regenerative Medicine *2015*

Awards and Achievements

Parse Evercode Single Cell Grant Program: Runner-up *2025*

10x Genomics Grant Program: Best Abstract *2020*

Best Poster Award: CRTD Day *2019*

Deutsche Zentrum für Diabetesforschung (DZD) Award: Conference Presentation *2016*

Best Talk Award: Genetics and Genomics Departmental Retreat *2012*

Best Talk Award: Cell Biology Departmental Retreat *2012*

Summer Internship Award: Jawaharlal Nehru Centre for Advanced Scientific Research *2007*

Baljit and Nirmal Dhindsa Scholarship: Highest Grades (Biological Department) *2005*

Academic Excellence Award: Freshman Student *2004*

Memberships in International Societies

Indian Society of Developmental Biologists (InSDB)
Indian National Association for the Study of the Liver (INASL)
International Society for Regenerative Biology (ISRB)
European Association for the Study of the Liver (EASL)
European Zebrafish Society (EZS)

Pedagogy

Instructor: Nature's Code: Chemistry & Biology *2025–Ongoing*
2 credit Bachelor course, SNIoE *Delhi-NCR, India*
Instructor: Research Methodology *2025–Ongoing*
4 credit PhD course, SNIoE *Delhi-NCR, India*
Instructor: Stem cells, Developmental genetics *2023–2026*
5 credit Master course, ULB *Brussels, Belgium*
Instructor: Embryology, organogenesis and genetics *2023–2026*
5 credit Bachelor course, ULB *Brussels, Belgium*
Instructor: Developmental and evolutionary biology *2023–2026*
5 credit Bachelor course, ULB *Brussels, Belgium*
Co-Instructor: Scientific Communication *2022–2024*

5 credit Bachelor course, ULB *Brussels, Belgium*
Instructor: Hands-on Introduction to RNA-Seq *2021*
CIVIS (European CIVIC University), ULB *Brussels, Belgium*
Organizer: School Workshop *2020–2021*
International School of Brussels (ISB) *Brussels, Belgium*
Instructor: Online Courses *2020*
R and Bioinformatics *YouTube*
Mentor: English Language *2018–2019*
Freedom English Academy (FEA) *via Skype, India*
Volunteer: School Student Lab Practical Course *2018*
Center for Regenerative Therapies Dresden *Dresden, Germany*
Teaching Assistant (TA): Advanced Topics - Genetics/Genomics *2009*
Duke University *Durham, USA*

Scientific Outreach

ASAPBio Fellow *2021*
Raise awareness of preprints and encourage their productive use in the life sciences

Pint of Science (Belgium) *2020*
Animal Models in Science

Science Slam (Deutsch) *2017*
Vorhersage des Zellulären Alters durch Künstliche Intelligenz

Journal Coverage Podcast *2015–2019*
Audio interviews of scientific authors of recent, important publications

Diversity Promotion

Member - Diversity, Equity, and Inclusion (DEI) committee *2020–2022*
International Zebrafish Society (IZFS)