

# Sumeet Pal Singh | PhD

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ORCID: 0000-0002-5154-3318

## Personal Details

**Birth Date:** August 12, 1985

**Nationality:** Indian

**Family Status:** Married



## Research Experience

### MISU Group Leader

2019–2021

Institut de Recherche Interdisciplinaire en Biologie Humaine et Moléculaire (IRIBHM)  
Université Libre de Bruxelles (ULB)

**Brussels, Belgium**

Group Members: Three PhD Candidates.

*Project title: Single-cell Endocrinology.*

### 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  $\beta$ -cell 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.*

## Education

### 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

## Grants Awarded

### MISU FNRS Fellow

2019–2021

How multi-tasking segregates homogenous cellular societies.

Awarded: 239,040 €

**Deutsche Forschungsgemeinschaft (DFG) Research Fellowship (Declined)** 2019–2021  
How multi-tasking segregates homogenous cellular societies.  
Awarded: 39,373 €

**EFSD/Lilly Young Investigator Research Award** 2018–2019  
The role of tetraspanin-7, an islet autoantigen, in regulating beta-cell functional heterogeneity  
Awarded: 50,000 €

**CRTD Postdoctoral Seed Grant** 2016–2017  
Dissecting functional heterogeneity in  $\beta$ -cells using Single-cell RNA-Seq  
Awarded: 20,000 €

**CRTD Postdoctoral Seed Grant** 2015–2016  
Inducible Cas9/CRISPR for Conditional Gene Knockouts in Vertebrate Regenerative Model Systems  
Awarded: 20,000 €

## Awards and Achievements

<b>Best Poster Award:</b> CRTD Day	2019
<b>DZD Award:</b> Conference Presentation	2016
<b>Best Talk Award:</b> Genetics and Genomics Departmental Retreat	2012
<b>Best Talk Award:</b> Cell Biology Departmental Retreat	2012
<b>Summer Internship Award:</b> Jawaharlal Nehru Centre for Advanced Scientific Research	2007
<b>Baljit and Nirmal Dhindsa Scholarship:</b> Highest Grades (Biological Department)	2005
<b>Academic Excellence Award:</b> Freshman Student	2004

## Publications

### Preprints

- Gillotay P, Shankar MP, Eski SE<sup>#</sup>, Reinhardt S, Kraenkel A, Blaesche J, Petzold A, Kesavan G, Lange C, Brand M, Detours V, Costagliola S<sup>§</sup>, **Singh SP<sup>§</sup>**.  
<sup>§</sup>Co-Corresponding Author  
<sup>#</sup>Lab PhD Student  
*Single-cell transcriptome analysis reveals cell-cell communication and thyrocyte diversity in the zebrafish thyroid gland.*  
**bioRxiv:** January 14; [doi:10.1101/2020.01.13.891630](https://doi.org/10.1101/2020.01.13.891630) 2020

### Original Research Articles

- Kanczkowski W, **Singh SP**, Chen LS, Mueller G, Bornstein SR.  
*Transcriptional analysis of sepsis-induced activation and damage of the adrenal microvascular cells.*  
**Frontiers in Endocrinology:** January 22; [doi:10.3389/fendo.2019.00944](https://doi.org/10.3389/fendo.2019.00944) 2020
- 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 Ca<sup>2+</sup> dynamics across pancreatic islets in vivo.*

- Nature Metabolism:** June 14; [doi:10.1038/s42255-019-0075-2](https://doi.org/10.1038/s42255-019-0075-2) 2019
4. 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](https://doi.org/10.1016/j.jsbmb.2019.04.009) 2019
  5. **Singh SP<sup>§</sup>**, Janjuha S, Chaudhuri S, Reinhardt S, Dietz S, Eugster A, Bilgin H, Korkmaz S, Zararsiz G, Ninov N, Reid JE.  
<sup>§</sup>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](https://doi.org/10.1038/s41598-018-35218-5) 2018
  6. 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](https://doi.org/10.1016/j.cub.2018.10.052) 2018
  7. 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](https://doi.org/10.3791/57851) 2018
  8. 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](https://doi.org/10.7554/eLife.32965) 2018
  9. **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](https://doi.org/10.1038/s41467-017-00461-3) 2017
  10. 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](https://doi.org/10.1038/npjregenmed.2016.2) 2016
  11. **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](https://doi.org/10.1016/j.devcel.2012.03.006) 2012
  12. 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](https://doi.org/10.1242/dev.068601) 2011

## Review Article

13. **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](https://doi.org/10.1387/ijdb.180067nn) 2018

## Book Chapter

14. **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](https://doi.org/10.1007/978-1-0716-0385-7) 2020

## Conference Talks

<b>Interdisciplinary Scientific Seminars - ULB</b> Cooperative Behaviour	<b>Brussels, Belgium</b> 2020
<b>Applied Bioinformatics in Life Sciences (3rd edition)</b> Machine Learning in Aging	<b>Leuven, Belgium</b> 2020
<b>2nd International Biostatistics Congress</b> Bioinformatics	<b>Antalya, Turkey</b> 2017
<b>11th CRTD Summer Conference</b> Regenerative Medicine	<b>Dresden, Germany</b> 2017
<b>EMBO Conference</b> The molecular and cellular basis of regeneration and tissue repair	<b>Paestum (Salerno), Italy</b> 2016
<b>MPI-CBG 15th Anniversary Symposium</b> Development and Regeneration	<b>Dresden, Germany</b> 2016
<b>10th CRTD Summer Conference</b> Regenerative Medicine	<b>Dresden, Germany</b> 2016
<b>Helmholtz Thementag on Diabetes</b> Helmholtz Zentrum Diabetes Science day	<b>München, Germany</b> 2017
<b>9th CRTD Summer Conference</b> Regenerative Medicine	<b>Dresden, Germany</b> 2015

## Scientific Outreach

<b>Science Slam (Deutsch)</b> <a href="#">Vorhersage des Zellulären Alters durch Künstliche Intelligenz</a>	2017
<b>Journal Coverage Podcast</b> <a href="#">Audio interviews of scientific authors with recent, important publications</a>	2015–2019

## Pedagogy

<b>English Language Mentor</b> Freedom English Academy (FEA)	2018–2019 via Skype, India
<b>School Student Lab Practical Course Conductor</b> Center for Regenerative Therapies Dresden	2018 Dresden, Germany
<b>Teaching Assistant (TA), Advanced Topics: Genetics/Genomics</b> Duke University	2009 Durham, USA