# Sumeet Pal Singh | PhD

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## 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 heterogenity
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

**Best Poster Award**: CRTD Day *2019*

**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*

## Publications

## Preprints

1. Gillotay P, Shankar MP, Eski SE[#], Reinhardt S, Kraenkel A, Blaesche J, Petzold A, Kesavan G, Lange C, Brand M, Detours V, Costagliola S[§], **Singh SP[§]**.
[§]Co-Corresponding Author
[#]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 *2020*

## Original Research Articles

2. 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*

3. 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*

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 *2019*

5. **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*

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 *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 *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 *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 *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 *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 *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 *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 *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 *2020*

## Conference Talks

**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*

## Scientific Outreach

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

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

## Pedagogy

**English Language Mentor** *2018–2019*
Freedom English Academy (FEA) *via Skype, India*

**School Student Lab Practical Course Conductor** *2018*
Center for Regenerative Therapies Dresden *Dresden, Germany*

**Teaching Assistant (TA), Advanced Topics: Genetics/Genomics** *2009*
Duke University *Durham, USA*