

Djamel Nehar-Belaid, Ph.D.

Curriculum Vitae

Date: Mai 18th, 2023

Web page: dnehar.github.io/

The Jackson Laboratory for Genomic Medicine
10 Discovery Drive
Farmington, CT 06032. USA

Office: (860) 837-2120
Mobile: (857) 928-1571
Email: nehar.djamel@gmail.com
Citizenship: France

Current Position

Research Scientist

The Jackson Laboratory for Genomic Medicine (JAX-GM), CT, USA. Research project: *Investigating immune disorders using single cell approaches*. Advisor: Dr. Duygu Ucar.

Education

2014 Immunology

Ph.D. Sorbonne University, Paris, France. Dissertation: *Systems biology approach to studying the tumor and uterine microenvironments*. Advisor: Dr. David Klitzmann

2010 Immunology

M.Sc. Sorbonne University, Paris, France.

2009 Molecular & Cellular Biology

B.Sc. Sorbonne University, Paris, France.

Research Experience

10/2021 - 04/2023

Associate Research Scientist. JAX-GM, CT, USA. Research project: *Investigating the tumor immune microenvironment in gliomas using single cell and spatial approaches*. Advisor: Dr. Roel Verhaak.

09/2020 - 10/2021

Associate Research Scientist. JAX-GM, CT, USA. Research project: *Deciphering the immune response to SARS-CoV-2 during the first weeks of life*. Advisors: Dr. Jacques Banchemau, Dr. Octavio Ramilo.

09/2016 - 09/2020

Postdoctoral Associate. JAX-GM, CT, USA. Research project: *Mapping SLE heterogeneity at the single-cell level*. Advisors: Dr. Virginia Pascual, Dr. Jacques Banchemau.

10/2014 - 08/2016

Research Fellow. French national center for scientific research (CNRS), Paris, France. Research project: *Investigating the tumor immune microenvironment in melanoma*. Advisor: Dr. David Klitzmann

Professional Activities

- 2018-present: The Federation of Clinical Immunology Societies (FOCIS)
- 2010-present: French Society of Immunology (SFI)

Editorial Activities (Peer Review Activities)

- Genome Biology, Genome Medicine, Cell reports, Cell Chemical-Biology, Communications Biology, Frontiers in Immunology.

Honors and Distinctions

- Three years full scholarship for *Ph.D.* studies. French National Center for Scientific Research.
- Selected abstract oral presentation in thematic session & FOCIS Research Award 2020.
- Selected abstract oral presentation in thematic session FOCIS 2019.
- Invited speaker "*2nd Meeting on Stochasticity and Control in Adaptive Immune Repertoires*". Paris. France.

Peer Reviewed Publications

First/Co-first author/Significant contribution

1. **Nehar-Belaid D**, Hong S, Marches R, Chen G, Bolisetty M, Baisch J, Walters L, Punaro M, Rossi R, Chung C-H, Huynh R, Singh P, Flynn W.F, Tabanor J-A, Kuchipudi N, Mejias A, Collet M, Lucido A-L, Palucka K, Robson P, Lakshminarayanan S, Ramilo O, Wright T, Pascual V and Banchereau J. *Mapping SLE heterogeneity at the single cell level.* Nature Immunology. **2020** Aug 3. doi: [10.1038/s41590-020-0743-0](https://doi.org/10.1038/s41590-020-0743-0). PMID: 32747814.
2. Pereira BI*, De Maeyer RPH*, Covre LP*, **Nehar-Belaid D***, Lanna A, Ward S, Marches R, Chambers ES, Gomes DCO, Riddell NE, Maini MK, Teixeira VH, Janes SM, Gilroy DW, Larbi A, Mabbott NA, Ucar D, Kuchel GA, Henson SM, Strid J, Lee JH, Banchereau J, Akbar AN. *Sestrins Induce Natural Killer Function In Senescent-like CD8⁺ T Cells.* Nature Immunology. **2020** Mar 30. doi: [10.1038/s41590-020-0643-3](https://doi.org/10.1038/s41590-020-0643-3). (*co-first authors). PMID:32231301
3. Lawlor N, **Nehar-Belaid D**, Grassmann JDS, Stoeckius M, Smibert P, Stitzel ML, Pascual V, Banchereau J, Williams A, Ucar D. *Single Cell Analysis of Blood Mononuclear Cells Stimulated Through Either LPS or Anti-CD3 and Anti-CD28.* **2021** Mar 17; Front. Immunol. 12:636720. doi: [10.3389/fimmu.2021.636720](https://doi.org/10.3389/fimmu.2021.636720). PMID:33815388.
4. Nordor AV, **Nehar-Belaid D**, Richon S, Klatzmann D, Bellet D, Fournier T, Dangles-Marie V and Aryee MJ. *The early pregnancy placenta foreshadows DNA methylation alterations of solid tumors.* Epigenetics. **2017** Sep;12(9):793-803. doi: [10.1080/15592294.2017.1342912](https://doi.org/10.1080/15592294.2017.1342912). PMID:28678605
5. Courau T, **Nehar-Belaid D**, Florez LM, Levacher B, Vazquez T, Brimaud F, Bellier B and Klatzmann D. *TGF β and VEGF cooperatively control the immunotolerant tumor environment and the efficacy of cancer immunotherapies.* The Journal of Clinical Investigation Insights. **2016**;1(9):e85974. doi:[10.1172/cetinate.85974](https://doi.org/10.1172/cetinate.85974). PMID:27699271.
6. **Nehar-Belaid D**, Courau T, Dérian N, Florez ML, Ruocco MG and Klatzmann D. *Regulatory T cells similarly orchestrate tolerance to fetuses and tumors.* The Journal of Immunology. January 15, **2016**, 196 (2) 678- 690; doi:[10.4049/jimmunol.1501834](https://doi.org/10.4049/jimmunol.1501834). PMID:26643476.

Co-authorship/collaborations (in chronological order)

7. George PJ, Marches R, **Nehar-Belaid D**, Banchereau J, Lustigman S. *The Th1/Tfh1-biased responses elicited by the rASP-1 innate adjuvant are dependent on TRIF and Type I IFN receptor pathways*. *Front. Immunol.* **2022**. doi.org/10.3389/fimmu.2022.961094. PMID: 36119026.
8. Varn FS, Johnson KC, Martinek J, Huse JT, Nasrallah MP, Wesseling P, Cooper LAD, Malta TM, Wade TE, Sabedot TS, Brat D, Gould PV, Wöehr A, Aldape K, Ismail A, Sivajothi SK, Barthel FP, Kim H, Kocakavuk E, Ahmed N, White K, Datta I, Moon HE, Pollock S, Goldfarb C, Lee GH, Garofano L, Anderson KJ, **Nehar-Belaid D**, Barnholtz-Sloan JS, Bakas S, Byrne AT, D'Angelo F, Gan HK, Khasraw M, Migliozi S, Ormond DR, Paek SH, Van Meir EG, Walenkamp AME, Watts C, Weiss T, Weller M, Palucka K, Stead LF, Poisson LM, Noushmehr H, Iavarone A, Verhaak RGW. *Glioma progression is shaped by genetic evolution and microenvironment interactions*. *Cell.* **2022** May 24;. [doi: 10.1016/j.cell.2022.04.038](https://doi.org/10.1016/j.cell.2022.04.038). PMID: 35649412.
9. Dérian N, Pham HP, **Nehar-Belaid D**, Tchitchek N, Klatzmann D, Eric V, Six A. *The Tsallis generalized entropy enhances the interpretation of transcriptomics datasets*. *PLoS One.* **2022**; 17(4):e0266618. [doi: 10.1371/journal.pone.0266618](https://doi.org/10.1371/journal.pone.0266618). PMID: 35446844; PMCID: PMC9022844.
10. Thibodeau A, Eroglu A, McGinnis CS, Lawlor N, **Nehar-Belaid D**, Kursawe R, Marches R, Conrad DN, Kuchel GA, Gartner ZJ, Banchereau J, Stitzel ML, Cicek AE, Ucar D. *AMULET: a novel read count-based method for effective multiplet detection from single nucleus ATAC-seq data*. *Genome Biology.* **2021** Sep 1;22(1):252. [doi: 10.1186/s13059-021-02469-x](https://doi.org/10.1186/s13059-021-02469-x). PMID:34465366.
11. Márquez EJ, Chung C-H, Marches R, Rossi RJ, **Nehar-Belaid D**, Mellert DJ, Kuchel GA, Banchereau J, Ucar D. *Sexual-dimorphism in human immune system aging*. *Nature Communications.* **2020** Feb 6;11(1):751. [doi: 10.1038/s41467-020-14396-9](https://doi.org/10.1038/s41467-020-14396-9). PMID: 32029736.
12. Hong S, Banchereau R, Maslow BL, Guerra MM, Cardenas J, Baisch J, Branch DW, Porter TF, Sawitzke A, Laskin CA, Buyon JP, Merrill J, Sammaritano LR, Petri M, Gatewood E, Cepika AM, Ohouo M, Obermoser G, Anguiano E, Kim TW, Nulsen J, **Nehar-Belaid D**, Blankenship D, Turner J, Banchereau J, Salmon JE, Pascual V. *Longitudinal profiling of human blood transcriptome in healthy and lupus pregnancy*. *The Journal of Experimental Medicine.* **2019** May 6;216(5):1154-1169. [doi: 10.1084/jem.20190185](https://doi.org/10.1084/jem.20190185). PMID:30962246.
13. Pitoiset F, Vazquez T, Levacher B, **Nehar-Belaid D**, Vigneron J, Torrieri-Dramard L, Klatzmann D and Bellier B. *Retrovirus-based Virus-Like Particle Immunogenicity and its Modulation by Toll-Like Receptor Activation*. *Journal of Virology.* **2017** Oct 13;91(21). pii: e01230-17. [doi: 10.1128/JVI.01230-17](https://doi.org/10.1128/JVI.01230-17). PMID:28794025.

Under revision/review articles

14. Nouri N, **Nehar-Belaid D**, Mejías A, Marches R, [4 others], Banchereau J, Pascual V, Ramilo R. *Longitudinal Single-Cell Profiling of Young Infants Initial Vaccinations Reveals Heterogeneous Serological Responses and Extensive but Reversible Transcriptional Changes in Most Immune Cell Types*. **2023**. (under revision, *Nature communications*)
15. Suina K, Yamasaki J, Otsuki Y, Okazaki S, Terai H, Shirasawa M, [16 others], Suzuki K, Takahashi K, **Nehar-Belaid D**, Verhaak Roel G.W and Nagano O. *Autophagic regulation of p62 (SQSTM1) determines platinum sensitivity and molecular subtype in small cell lung cancer*. **2023**. (submitted, *Nature cancer*)
16. Cheong J-G, Ravishankar A, Sharma S, Parkhurst C, **Nehar-Belaid D**, Ma S, [18 others], Pascual V, Buenrostro J, Steen H, Schenck EJ, Kaner RJ., Niec R, Lief L, Ucar D. Josefowicz SZ. *Durable Alterations of Hematopoiesis and Chromatin post-COVID-19*. **2023**. (under revision, *Cell*). Preprint: <https://doi.org/10.1101/2022.02.09.479588>

17. Caielli S, Balasubramanian P, Balaji U, Wan Z, Baisch J, Walters L, Smitherman C, **Nehar-Belaid D**, Marches R, [3 others], Banchereau J.F, Gu J, Wright T and Pascual V. *Type I Interferon promotes MxA-dependent IL-1B release in SLE monocytes*. **2023**. (under review, *Nature Immunology*)

In preparation articles

18. **Nehar-Belaid D**, Mejias A, Yerrabelli R, Chen G, Marches R, Rossi R, Ucar D, Pascual V, Ramilo O Kuchel G and Banchereau J. *Mapping the immune perturbations associated with SARS-CoV-2 infection during the first weeks of life*. (planned submission to *Nature Medicine*)
19. **Nehar-Belaid D**, Eroglu A, Chen G, Yerrabelli R, Marches R, Rossi R, Mejias A, Pascual V, Ramilo O Kuchel G, Ucar D and Banchereau J. *Human immune system heterogeneity across the lifespan at the single cell resolution*. (planned submission to *Cell*)

Teaching Experience

Courses:

Spring 2015: Analysis and visualization methods for transcriptomic microarray data. University of Patras, Greece.

M.Sc. committee:

2012-2016: Candidate selection. Sorbonne University, Paris. France

Mentoring Experience

- *Isabelle Chen*, intern, Northwestern University. October 2018 - October 2021
- *Rushil Yerrabelli*, intern, Duke University. Sept 2019 - October 2021
- *Summit Singhaviranon*, MD-Ph.D rotation, UConn health, Sept 2020 - Dec 2020
- *Omar Mustapha Omar*, MD-Ph.D summer intern, UConn health, Jun 2018 - Aug 2019
- *Dong JinHong*, MD-Ph.D rotation, UConn health, Jun 2018 - Aug 2019
- *James Seuch*, Summer Student Program, The Jackson Laboratory, summer 2018

Oral Presentations/Session Moderation (in chronological order)

- Session moderator - Systems Immunology in Aging and Complex Diseases. *"Immune diseases session"*. Farmington, CT. Sept. 2022.
- Session moderator - 31st Annual Short Course on Experimental Models of Human Cancer. Farmington, CT. *"Rising Stars - Flash Talks Session & panel discussions"*. Aug. 2022.
- *"Human immune system heterogeneity across the lifespan at the single cell resolution"*. 30th annual short course on Experimental Models of human cancer. Virtual meeting. **Selected short talk**. Farmington, CT. Aug. 2021.
- Session moderator - Systems Immunology in Aging and Complex Diseases. Virtual meeting. *Infectious diseases session*. Farmington, CT. Sept. 2021.
- *"Human immune system heterogeneity across the lifespan at the single cell resolution"*, FOCIS virtual meeting. **Selected abstract oral presentation in thematic session & FOCIS Research Award 2020**. Oct. 2020.
- *"Single immune cells from newborns to grandparents"*, Systems Immunology in Aging and Complex Diseases. Virtual meeting. **Selected from Attendee Abstract**. Sept. 2020.

- *"Mapping SLE heterogeneity at the single cell resolution"*. FOCIS meeting, Boston, MA. **Selected abstract oral presentation in thematic session.** Jun. 2019.
- *"Different cell types contribute to unique components of the interferon signature in SLE PBMCs"*, FOCIS meeting, San Francisco, CA. Poster presentation. Jun. 2018.
- *"2nd Meeting on Stochasticity and Control in Adaptive Immune Repertoires"*, Paris, France. **Invited speaker.** Oct. 2018.
- *"Signature discovery: a bridge between tumoral and materno-foetal tolerances"*, Translational data analysis workshop. **Short talk.** Pitié-Salpêtrière Hospital, Paris, France. Sept. 2016.
- *"Graphical visualization methods of microarray data"*. University of Patras, Greece. **Invited speaker.** Spring 2015.
- *"Using systems immunology to the study of tumor microenvironment"*, French Society of Immunology (SFI), Paris, France. Poster presentation. Spring 2014.

References

Dr. Roel Verhaak, Ph.D.

The Jackson Laboratory for Genomic Medicine
10 Discovery Drive
Farmington, CT 06032. USA
Roel.Verhaak@jax.org
(860) 837-2105

Dr. Jacques Banchereau, Pharm.D., Ph.D.

Immunai
Alexandria Center for Life Sciences
430 E. 29th Street. West Tower, Ste 1150
New York, NY 10016. USA
jacques@immunai.com
(469)877-7416

Dr. Virginia Pascual, M.D.

Drukier Institute for Children's Health and
Department of Pediatrics
Weill Cornell Medicine, New York,
NY 10021, USA
vip2021@med.cornell.edu

Dr. Octavio Ramilo, M.D.

Chair of the Department of Infectious
Diseases.
St. Jude Children's Hospital in Memphis, TN.
USA
octavio.ramilo@stjude.org

Dr. David Klatzmann, M.D., Ph.D.

Pitié-Salpêtrière hospital
Pierre & Marie Curie University and Medical
school / Sorbonne University.
83, boulevard de l'hôpital, 75013, Paris. France.
david.klatzmann@upmc.fr

Dr. Arne Akbar Ph.D.

University College London
Gower Street,
London, WC1E 6BT. UK
a.akbar@ucl.ac.uk