

Pierre Tonnerre, PhD, HDR.

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Research Profile:

Dr. Pierre Tonnerre earned his Ph.D. in Immunology and Immunogenetics from the University of Nantes. He subsequently joined the Massachusetts General Hospital and Harvard Medical School, where he investigated antigen-specific T cell responses during acute and chronic viral infections. He then pursued postdoctoral training at Institut Pasteur before establishing his own research group at Saint-Louis Hospital in Paris within the Inserm U1342 unit at the Institut de Recherche Saint-Louis (IRSL).

A recipient of a Marie Skłodowska-Curie Fellowship and laureate of the ATIP-Avenir program, Dr. Tonnerre now leads the “Cellular Immunity in Cancers and Infections” team. His laboratory studies T cell responses across a broad spectrum of human diseases, with a particular focus on cancer and infectious diseases. The team aims to decipher how T cell heterogeneity, differentiation, and functional plasticity shape the quality and durability of human immune responses, and how these properties can be leveraged to design more effective immunotherapies and vaccination strategies.

Dr. Tonnerre supervises several students and early-career researchers and regularly reviews manuscripts for international peer-reviewed journals. He also serves as an external reviewer for national and international funding agencies. He is a member of the ANRS CSS12 Scientific Commission and coordinates several collaborative research programs funded by national agencies, foundations, and pharmaceutical companies. He is also an active member of the FHU TRANSVIR, where he contributes to collaborative research on antiviral immune responses in immunocompromised individuals and the development of antiviral T-cell therapies.

Professional experiences:

May 2022 – Present	ATIP-Avenir Team Leader at Institut de Recherche Saint-Louis (IRSL), INSERM UMR1342, Paris, France.
Jan. 2020 – April 2022	Senior Postdoctoral fellow at Institut de Recherche Saint-Louis, Inserm U976, Paris, France.
Oct. 2018 – Oct. 2019	Senior Postdoctoral fellow at Institut Pasteur, Paris, France.
Oct. 2013 – July. 2018	Postdoctoral fellow at Massachusetts General Hospital and Harvard Medical School, Boston, USA.
Sep. 2009 – Dec. 2012	Graduate student at Center for Research in Transplantation and Immunotherapy, INSERM UMR1064, University of Nantes, Nantes, France.

Academic degrees:

Mar. 2024	Habilitation à Diriger des Recherches , Université Paris Cité, France.
Nov. 2012	Ph.D. in immunology and immunogenetics , University of Nantes, France.
June 2009	Master in Biology, Biotechnology and Therapeutical Research , University of Nantes, France.

Awards & Funding

2025	University Hospital Federation (FHU), TRANSVIR, (WP co-leader).
2025	Grant, ANRS, CSS12 (Viral Hepatitis) (Coordinator).
2024	CIFRE doctoral fellowship, Parean Biotechnologies (H. LE, Thesis director).
2023	Grant, les laboratoires Servier, (Coordinator).
2023	Doctoral fellowship La Ligue Contre le Cancer, (M. BOSSIS, Thesis director).
2022	Grant, Agence National de la Recherche (ANR), (WP leader).

2022	Grant “Émergence”, Cancéropôle Ile de France, (Co-leader).
2022	Lauréat du programme ATIP-Avenir , INSERM / CNRS, (Coordinator).
2021	CIFRE doctoral fellowship, Servier (A. DIAZ-HERRERO , Thesis co-director).
2021	Grant, ANRS, CSS12 (Viral Hepatitis) (Partner).
2020	Lauréat bourse individuelle Marie Skłodowska-Curie (Recipient).

Select Publications:

1. A Díaz Herrero, HF Pelaez-Prestel, L Massenet-Regad, M Veyssiere, J Calvani, C Cristinelli, J Lehman-Che, V Meignien, C Thieblemont, V Blanc, V Soumelis, **P Tonnerre**. [Spatial transcriptomics unveils immune cellular ecosystems associated with patient survival in Diffuse Large B-cell Lymphoma](#). **Oncoimmunology**. 2026 Dec 31;15(1):2660418. doi: 10.1080/2162402X.2026.2660418).
2. P Rollin[#], B Pluskwa[#], E Artru, T Le Vaslot, D Biron, M Bossis, F Onodi, J Le Maout, N Rouas-Freiss, François Desgrandchamps, CS Lindestam Arlehamn, MF Chevalier, E Xylinas*, **P Tonnerre***. [BCG immunotherapy for bladder cancer induces systemic and bladder-infiltrating BCG-specific CD4+ Th1 responses](#). **iScience**. 2026 Jan 12;29(2):114676.
3. Cabezas-Cruz A, Cano-Argüelles AL, **Tonnerre P**. [What vaccines teach us about pathogen ecology](#). **Trends Immunol**. 2025 May;46(5):353-356. doi: 10.1016/j.it.2025.03.006.
4. **Tonnerre P***, Wolski D, Subudhi S, Al-Jabban J, Hoogeveen R, Tully D, Damasio M, Drescher HK, Bartsch LM, Tully DC, Sen DR, Bean DJ, Brown J, Torres-Cornejo A, Robidoux M, Kvistad D, Alatrakchi N, Cui A, Lieb D, Cheney JA, Gustafson J, Lewis-Ximenez LL, Massenet-Regad L, Eisenhaure T, Aneja J, Haining WN, Chung RT, Hacohen N, Allen T, Kim AY, Lauer GM*. [Differentiation of exhausted CD8 T cells after termination of chronic antigen stimulation stops short of achieving functional T cell memory](#). **Nat Immunol**, 22, pages1030–1041 (2021).
5. Yates KB, **Tonnerre P**, Martin DE, Gerdemann U, Al Abosy R, Comstock DE, Weiss SA, Wolski D, Tully D, Chung RT, Allen T, Kim AY, Fidler S, Fox J, Frater J, Lauer GM, Haining WN, Sen DR. [Epigenetic scars of CD8+ T cell exhaustion persist after cure of chronic infection in humans](#). **Nat Immunol**, 22, pages1020–1029 (2021)
6. **Tonnerre P***, Melgaço JG*, Torres-Cornejo A, Pinto MA, Blumel J, Yue C, Sergio Fonseca de Sousa P, da Motta de Mello V, Moran J, Bispo de Filippis AM, Wolski D, Grifoni A, Sette A, Barouch DH, Hoogeveen RC, Baylis SA, Lauer GM*, Lewis-Ximenez LL*. [Evolution of the innate and adaptive immune response in women with acute Zika virus infection](#). **Nat Microbiol**. 2020 Jan;5(1):76-83. doi: 10.1038/s41564-019-0618-z. *contributed equally
7. Hoogeveen RC, Robidoux MP, Schwarz T, Heydmann L, Cheney JA, Kvistad D, Aneja J, Melgaço JG, Fernandes CA, Chung RT, Boonstra A, Kim AY, Baumert TF, Timm J, Lewis-Ximenez LL, **Tonnerre P***, Lauer GM*. [Phenotype and function of HBV-specific T cells is determined by the targeted epitope in addition to the stage of infection](#). **Gut**. 2019 May;68(5):893-904. doi: 10.1136/gutjnl-2018-316644. *contributed equally as senior authors
8. Wolski D, Foote PK, Chen DY, Lewis-Ximenez LL, Fauvelle C, Aneja J, Walker A, **Tonnerre P**, Torres-Cornejo A, Kvistad D, Imam S, Waring MT, Tully DC, Allen TM, Chung RT, Timm J, Haining WN, Kim AY, Baumert TF, Lauer GM. [Early Transcriptional Divergence Marks Virus-Specific Primary Human CD8+ T Cells in Chronic versus Acute Infection](#). **Immunity**. 2017 Oct 17;47(4):648-663.e8. doi: 10.1016/j.immuni.2017.09.006.
9. Mehta S, Cronkite DA, Basavappa M, Saunders TL, Adiliaghdam F, Amatullah H, Morrison SA, Pagan JD, Anthony RM, **Tonnerre P**, Lauer GM, Lee JC, Digumarthi S, Pantano L, Ho Sui SJ, Ji F, Sadreyev R, Zhou C, Mullen AC, Kumar V, Li Y, Wijmenga C, Xavier RJ, Means TK, Jeffrey KL. [Maintenance of macrophage transcriptional programs and intestinal homeostasis by epigenetic reader SP140](#). **Sci Immunol**. 2017 Mar 3;2(9). doi: 10.1126/sciimmunol.aag3160.
10. Sen DR, Kaminski J, Barnitz RA, Kurachi M, Gerdemann U, Yates KB, Tsao HW, Godec J, LaFleur MW, Brown FD, **Tonnerre P**, Chung RT, Tully DC, Allen TM, Frahm N, Lauer GM, Wherry EJ, Yosef N, Haining WN. [The epigenetic landscape of T cell exhaustion](#). **Science**. 2016 Dec 2;354(6316):1165-1169. doi: 10.1126/science.aae0491.

Patents

Novel alternative splice transcripts for MHC class I related chain alpha (mica) and uses thereof. **Tonnerre P**, Gerard N, Gavlovsky PJ, Charreau B. 2015. WO 2015001082 A1.

Antibody combination and methods for dendritic cells enrichment. F. Onodi, **P Tonnerre**. 2024. EP24305202.4