

Benjamin Nemoz M.D., Ph.D.

Physician–scientist • antibody engineering, structural immunology & machine learning

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Infectious diseases physician–scientist at the intersection of **structural immunology, antibody engineering, and machine learning**. A decade across clinical virology, broadly neutralizing antibody discovery, and the design, training, and evaluation of **antibody foundation models**. First-author work in the *New England Journal of Medicine*, co-author of the Nature Biotechnology AIntibody benchmark, and co-founder / CTO of a bootstrapped AI antibody-design company. Equally at home at the bench, in the clinic, and in the model code, building and evaluating the systems that accelerate biology. Fluent in French, English, and Spanish.

EXPERIENCE

Post-doctoral Associate

2024 – present

The Scripps Research Institute — La Jolla, CA

Antibody & Infectious Diseases | labs of Prof. Dennis Burton & Dr. Bryan Briney.

- Developed a **nucleotide-level antibody foundation model (AbLM)** and a **somatic-hypermutation (SHM) model**: designed the training objectives, masking scheme, and evaluation benchmarks, capturing B-cell repertoire evolution at the resolution where affinity maturation happens.
- **Won Challenge 2** of the blinded AIntibody design challenge (published in *Nature Biotechnology*) with the Briney lab; Challenge 3 designs reached low-double-digit-nanomolar affinity.
- Drove broadly neutralizing antibody discovery against HIV Env SOSIP trimers, biolayer interferometry (BLI), and single-cell / repertoire sequencing.
- Architected **PairPlex**, a high-throughput platform for natively-paired antibody-repertoire sequencing at the scale of millions of heavy/light pairs.

Co-founder & Chief Technology Officer

2025 – present

Fabulous Sciences SAS — France • fabulousciences.com

- Founded (incorporated July 2025) and lead the technical platform for **semi-autonomous design of next-generation, fully human monoclonal antibodies** for therapeutic use.
- Grown organically to date through profitable client work rather than dilutive fundraising.
- Delivered antibody-design programs for **DKFZ** (German Cancer Research Center) and a **NASDAQ-listed biotech**; multiple successful proofs of concept.
- Awarded the French national “**Deep Tech**” label (Bpifrance) and a **Bpifrance innovation prize** with cash award (December 2025).
- Advisory board includes **Heinz Hillen** (lead scientist on adalimumab / Humira) and **Prof. Charles Dumontet** (co-founder of Mablink Bioscience, ADC company acquired by Eli Lilly, 2023).

Medical Virologist (Assistant Hospitalo-Universitaire)

2019 – 2023

Virology Laboratory, CHU Grenoble Alpes — France

- Led emerging- and highly-pathogenic-virus activities and headed the **BSL-3 facility**; directed SARS-CoV-2 genomic surveillance, variant tracking, and neutralizing-antibody studies through the pandemic.
- Built semi-targeted infectious-disease **metagenomics** (nucleic-acid capture) for pathogen detection (doctoral thesis), and stood up antibody-repertoire sequencing for infectious-disease work.
- Lectured across medicine, pharmacy, nursing, and midwifery programs and a structural-biology master’s, including coursework on next-generation sequencing.

Field & Global-Health Laboratory Work

2018, 2026

Sierra Leone (2026) • Foya, Liberia (2018)

Sierra Leone (Apr–May 2026): field sample collection and PBMC-isolation workflow. • **Liberia (2018, Biologie Sans Frontière)**: set up a remote public health-centre laboratory encompassing care pathways, assay technology transfer, equipment.

EDUCATION

Ph.D., Biology (immuno-virology)

2019 – 2024

Université Grenoble Alpes / Institut de Biologie Structurale — CNRS

Advisor: Prof. Pascal Poignard. Characterization and evolution of antibody repertoires in infectious disease; broadly neutralizing antibodies in HIV.

M.D., Infectious Diseases & Clinical Laboratory Medicine — specialty Virology & Immunology

2019

Université Grenoble Alpes — France

Residency in Medical Biology, CHU Grenoble Alpes (2014–2019).	
M.Sc., Structural Biology & Biochemistry	2015 – 2016
<i>Université Joseph Fourier (Grenoble) / Institut de Biologie Structurale</i>	
NMR of intrinsically disordered proteins (Blackledge group) — Influenza PB2 / importin- α .	
M.Sc. (M1), Molecular & Cellular Biology	2006 – 2014
<i>Université Claude Bernard Lyon 1 — France</i>	

SELECTED PUBLICATIONS

Author name in bold. Full list — 519 citations, h-index 11, i10-index 12 — on Google Scholar.

1. **B. Nemoz**, M. Ar Gouilh, K. Pernet-Gallay, . . . , J. Lupo, O. Epaulard. **Measles Inclusion-Body Encephalitis after Allogeneic Stem-Cell Transplantation**. *N. Engl. J. Med.* 2026;395(2):203–205.
2. M.F. Erasmus, D. Bedinger, . . . , **B. Nemoz**, . . . *et al.*. **A blinded, prospective benchmark of in-silico antibody discovery anchored to experimental affinity and developability**. *Nat. Biotechnol.* 2026 (accepted, in press).
3. C. Joyce, **B. Nemoz**, R. Bastidas, B. Briney, D.R. Burton. **Longitudinal analysis of drift in the circulating human antibody repertoire over four years**. *Sci. Rep.* 2026 (co-first author).
4. **B. Nemoz**, D. Ternant, S. Bailly, . . . , F. Stanke-Labesque. **New steps in infliximab therapeutic drug monitoring in inflammatory bowel disease**. *Br. J. Clin. Pharmacol.* 2019;85(4):722–728.
5. **B. Nemoz**, L. Roger, V. Leroy, J.-D. Poveda, P. Morand, S. Larrat. **Evaluation of the cobas GT HCV genotyping assay across G1–6 including low viral loads**. *PLoS ONE* 2018;13(3):e0194396.
6. S.W. Hamaia, N. Pugh, N. Raynal, **B. Némorz**, . . . , R.W. Farndale. **Mapping of potent, specific binding motifs (GLOGEN, GVOGEA) for integrin $\alpha_1\beta_1$** . *J. Biol. Chem.* 2012;287(31):26019–26028.
7. O. Epaulard, M. Buisson, **B. Nemoz**, **Persistence at one year of neutralizing antibodies after SARS-CoV-2 infection**. *J. Infect.* 2021.
8. K. Bigaut, M. Mallaret, S. Baloglu, **B. Nemoz**, **Guillain-Barré syndrome related to SARS-CoV-2 infection**. *Neurol. Neuroimmunol. Neuroinflamm.* 2020;7(5).

TECHNICAL SKILLS

Antibody & wet lab	Antibody engineering (incl. VHH/nanobodies), SOSIP trimer design & expression, biolayer interferometry (BLI), molecular & clinical virology.
Sequencing & data	Single-cell & bulk repertoire NGS: hands-on across Illumina (NovaSeq, NextSeq, MiSeq), Element AVITI, and Oxford Nanopore; large-scale data management and multi-terabyte sequence databases; Python, Polars, MMseqs2, IMGT.
AI / ML	Foundation-model design and training for biological sequences: architecture selection (attention, CNN/RNN, mixture-of-experts), pretraining and post-training, masking strategies, scaling-law-informed sizing, and regularization for shallow-data regimes (dropout, ensembling); evaluation and benchmark design; binding-affinity prediction; agentic systems (model harnesses, MCP servers, RAG).
Compute & infra	Multi-GPU training & inference across A6000, L40S, A100, and B200; large-scale cluster runs through a CoreWeave partnership; comfortable across architectures with a working grasp of software and hardware constraints; Linux.
Languages	French (native), English (fluent), Spanish (fluent).

SELECTED POSTERS, TALKS & AWARDS

Posters	• <i>Antigen-agnostic AI-simulated SHM reveals evolutionary constraints and improves neutralization potency of HIV-1 broadly neutralizing antibodies by up to 76-fold</i>. AIRR Community Meeting VIII, Yale University, New Haven, CT, June 2026. • <i>Modeling Immune Tolerance with Antibody Language Models: Simulating B-Cell Selection and Somatic Hypermutation</i>. 4th Antibodies & Complement Meeting, Catania, Sicily, May 2025.
Talks, Awards & Service	• Young Investigator Award, Consortium for HIV/AIDS Vaccine Development (CHAVD), 2023. Peer reviewer for <i>Nature</i>. • Invited talks: CHAVD (2023); Grenoble Immunology Club — <i>Broadly neutralizing antibodies in HIV</i> (2023). • Grants: Fondation Philipp (2022); ACAI/SFM mobility (2021); CHUGA endowment patronage (2020).