

**Nathalie BALANDRAUD (PIERI) MD, PHD**

Position: Hospital Practitioner and Researcher with INSERM INTERFACE position  
ORCID ID 0000-0002-3839-0185

**Address:**

Rheumatology University hospital Center, Hôpital Sainte Marguerite 13009 Marseille  
And  
INSERM UMRs 1097, Autoimmune Arthritis,  
Parc Scientifique de Luminy. 163 Avenue de Luminy. 13288 Marseille. France.

**EDUCATION**

- 1984-1991 : Medical school, University Lyon-Nord , France
- 1991 : National Internship
- 1993: **MASTER degree** in fundamental and experimental pharmaco-kinetic and drug effect on humans, Aix Marseille University.
- 1998 : Specialization in **Rheumatology**
- 1999 : **MD Medical Doctor** , Medical school Lyon, France
- 2003: **PhD** in Osteoarticular Biology, Denis Diderot, Université de Paris.
- 2005-2006 Post doctoral position, In P Pontarotti's group, EGGE Genome, Environment, Evolution , AMU Marseille
- 2017 **HDR**, Toulouse Paul Sabatier University.

**ACADEMIC/ PROFESSIONAL APPOINTMENTS**

1997-present Hospital practitioner at Ste Marguerite Hospital Rheumatology department (Head P Lafforgue)  
2005-2019 : Researcher ( contract) at the INSERM U639, Faculty of Medicine La Timone, Marseille  
2019-present: Researcher (INTERFACE POSITION) at the INSERM UMRs1097, Luminy, Marseille

**ACHIEVEMENTS**

62 peer-reviewed publications,

Member of the French society of Rheumatology (SFR)

Member of CLUB-REM ( scientific sub group of SFR dedicated to arthritis and auto immune diseases)

**Patents**

EB19058-PCT/ EP2020-056015, New vaccinal strategy to prevent or treat rheumatoid arthritis-\* linked to the project (Inventors: Auger Isabelle, **Balandraud Nathalie**, Roudier Jean).

PCT/EP2021/057849 "Apheresis column for the treatment of rheumatoid arthritis" (published under number FR3108515). (Inventors: Serre Guy, Guy Serre Géraldine OFFER Marianne CHABOD Mikael PANCARTE Jean Roudier **Nathalie Balandraud**)

**FIELDS OF INVESTIGATION**

I'm a member of the only research unit working on rheumatoid arthritis in the PACA region.

Rheumatoid arthritis (RA) is preceded and probably caused by "anti-citrullinated protein antibodies" (ACPAs). ACPAs recognize citrulline residues on many proteins. Citrulline is a modified amino acid. Initially, it is an arginine, which is then turned into citrulline by an enzyme called peptidyl arginine deiminase (PAD). The mechanisms leading to the production of ACPAs are unknown. We have found that PAD enzymes are important targets in the development of RA. In mice, the immune response to PAD induces anti-citrullinated protein antibodies. In patients, immune responses to PAD4 are specific for RA. A sub unit of our group lead by I Auger develop a therapy to block the immune response to the PAD enzyme and the production of ACPAs. This new therapy could prevent or cure rheumatoid arthritis.

Our team has developed protein chips with the aim of detecting new autoantibodies in RA. These techniques allowed us to detect the presence of anti PAD4 Ab in RA.

**TOP- 10 PEER-REVIEWED PUBLICATIONS as first\* or last\* author****Top 10 publications**

(<https://www.researchgate.net/profile/Nathalie-Balandraud>)