



COST ACTION CA24124

Network for the Advancement of Neutropenia Research and Patient Support (Neutro-NARPS)

Version 1.0



About Neutro-NARPS

Neutro-NARPS is a COST Action focused on advancing research and improving patient care in Chronic Neutropenia (CNP), a rare and heterogeneous hematological disorder. It brings together a multidisciplinary network of European and international experts and early-career researchers from medicine, molecular biology, bioinformatics, and computational biology.

In collaboration with patient registries, organizations, industry, and major scientific bodies such as the European Hematology Association (EHA) and the Severe Chronic Neutropenia International Registry (SCNIR), the Action aims to bridge the gap between basic research, translational science, and clinical practice.



Neutro-NARPS focuses on understanding disease mechanisms, improving diagnosis, and developing innovative therapeutic strategies, including targeted and gene-based approaches. It also leverages machine learning and multi-omics data to enhance precision medicine, while prioritizing the improvement of patients' quality of life through patient-reported outcomes and personalized care.

Challenge

Despite advances in technology, data integration, and collaborative research, major challenges remain in Chronic Neutropenia (CNP):

- **Unknown disease mechanisms:** Causes of CNP development and progression to severe conditions (MDS/AL) remain unclear.
- **Emerging CNP entities:** Idiopathic and likely-acquired neutropenia need further characterization.
- **Lifestyle and immune factors:** The role of inflammation, immunity, nutrition, and lifestyle (e.g. LEA) is poorly understood.
- **Therapy-related complications:** CNP may result from hematology and immunology treatments through unclear mechanisms.
- **Limited treatments:** Current therapies like G-CSF are non-curative, while stem cell transplantation is high-risk.
- **Precision medicine tools:** Reliable biomarkers and advanced diagnostic/prognostic tools are lacking.
- **Quality of life gaps:** Better assessment of patient-reported outcomes (PROs) is needed.

To address these challenges, Neutro-NARPS aims to leverage multi-omics data, advanced bioinformatics, and machine learning, while promoting the development and clinical translation of innovative and potentially curative therapies.

Working Groups

Neutro-NARPS is structured around six complementary Working Groups, each addressing a key aspect of Chronic Neutropenia (CNP) research and patient support. Together, they create a multidisciplinary framework that connects basic science, translational research, clinical innovation, data science, and quality-of-life evaluation.

WG1 - The Role of Inflammation in Congenital CNP

Focuses on how inflammatory pathways contribute to congenital CNP, disease progression, and transformation to malignant states, with the aim of identifying biomarkers and new therapeutic targets.

WG2 - Acquired and Likely-Acquired CNP and Inflammation

Investigates the interplay between inflammation, immune dysregulation, nutrition, microbiome, and acquired forms of CNP, with particular attention to associated risks such as clonal hematopoiesis, cardiovascular disease, cancer, and autoimmunity.

WG3 - CNP Risk Factor Profiling and ML Predictive Modeling

Develops data-driven approaches for CNP classification, risk stratification, and prognosis by integrating clinical, laboratory, and multi-omics data through machine learning and advanced bioinformatics.

WG4 - Drug-Induced Neutropenias by Novel Therapies

Explores the mechanisms underlying neutropenia caused by modern hematology and immunology treatments, with the goal of improving understanding of myeloid cell differentiation and supporting safer therapeutic strategies.

WG5 - General Concept and Design of Clinical Trials

Supports the translation of innovative therapies from bench to bedside by advancing gene-editing strategies, novel and repurposed drugs, and the regulatory framework needed for future clinical trials in CNP.

WG6 - Development of Tools for Evaluation of PROs and QoL

Aims to improve the quality of life of CNP patients by developing validated tools, including digital patient-reported outcome measures, to better capture patient needs, wellbeing, and daily disease burden.

How can I participate?

Visit: www.neutro-narps.eu/how-can-i-participate
(or scan the QR)

- Read the Action Description MoU
- Inform the Chair (e.papadaki@uoc.gr)
- Apply to join your Working Group



Please note: *Management Committee nominations are carried out through the COST National Coordinators*



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 coordinator@neutro-narps.eu

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