Professor Nicolas Voelcker

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Leader in nanobiosensors, wearable biosensing technologies and translational diagnostics, bringing expertise in biosensor engineering, nanomaterials, clinical translation, commercialisation and multidisciplinary collaboration for next-generation patient monitoring and point-of-care healthcare.

Brief Biography

- Bioengineer advancing next-generation diagnostic and biosensing and technologies.
- Australian Research Council Laureate Fellow (*Australia's premier research fellowship*) with distinguished record of translating research into health technologies.
- Interdisciplinary researcher spanning engineering, nanotechnology, biotechnology and medicine.
- Inventor and entrepreneur, very experienced commercialising medical innovations.
- H-index: 87; 32,800+ citations; 650+ peer-reviewed publications; 50+ patent families/applications in diagnostics, biomaterials and drug-delivery technologies.

Core Expertise

Point-of-care diagnostics, molecular biosensors and bioanalytical devices ● Wearable, implantable and microneedle sensing technologies ● Nanomaterials, microfluidics and silicon-based diagnostic platforms ● Clinical translation, commercialisation and regulatory-ready medical technologies.

Relevant Projects and Experience

- Lead the **MOBIUS Research Hub**, a national consortium developing molecular biosensors, wearable sensing technologies and point-of-care diagnostic platforms for rapid clinical decision-making and patient monitoring.
- Hold Australia's most prestigious research fellowship, leading programs in wearable, implantable and microneedle biosensors for real-world healthcare.
- Contributor to major multidisciplinary research consortia linking engineering, biotechnology, medicine, manufacturing and industry partners.
- Collaborative European experience through the EU COST Network; long-standing partnerships with RWTH Aachen, Leibniz Institute for New Materials and Universitat Rovira i Virgili; and participation in Australia-Europe and Marie Skłodowska-Curie linked programmes.

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Horizon Europe Calls of Interest

HORIZON-HLTH-2027-02-IND-02-two-stage

Potential Role in a Consortium

- Potential Work Package Leader for Diagnostic Technology Development, leading optimisation of biosensors, nanomaterials, microfluidics and sample-to-answer point-of-care platforms.
- Potential lead for Biosensor and Device Innovation, contributing expertise in molecular diagnostics, wearable and implantable sensors, microneedle technologies and advanced bioanalytical systems.
- Translation and Commercialisation Lead, supporting technology maturation, intellectual property strategy, manufacturability and industry engagement to accelerate uptake and market readiness.
- Cross-disciplinary Integration Partner, connecting engineering, materials science, biotechnology, clinical research and industry stakeholders across the development pathway.
- Strategic contributor to clinical validation studies, ensuring diagnostic platforms are designed for real-world implementation, scalability and regulatory translation.

Key Words

● Nanobiosensors ● Wearable biosensors ●Translational diagnostic technologies ● Biosensor engineering ● Nanomaterials ● Clinical translation ● Point-of care-diagnostics