

**ITALY****EXTERNAL ASSOCIATE****NAME AND
SURNAME:**

Arti Ahluwalia

AFFILIATION:Professor of Biomedical Engineering at
University of Pisa**AREA OF
EXPERTISE:**

Biomedical Engineering

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SHORT BIOGRAPHY

Arti Ahluwalia was born in Kenya and educated in the UK. She has a B.Sc. Physics from University of Bath, M.Sc. in Instrumentation and Analytical Science from the University of Manchester (formerly UMIST), UK and a Ph.D. in Bioengineering from the Polytechnic of Milan, Italy.

Her research interests are in in-vitro models of integrative pathophysiology and associated innovative materials and advanced cell culture systems. She is also involved in capacity building

in the field of Biomedical Engineering, in association with UNECA, FABLAB Pisa and ABEC (the African Biomedical Engineering Consortium).

She is professor of Bioengineering and Director of the Research Center "E. Piaggio", where she heads the Human-based In Vitro Models (IVM) Group and the NanoBioscopy Lab. She is also director of the Interuniversity Center for the Promotion of the 3Rs Principles in Teaching and Research (Centro 3R). Although highly multidisciplinary in nature, her research has centered on the interaction between biological systems and man-made devices or structures focused on the creation of human-based organ and system models in-vitro and in-silico models using soft and smart materials, cells and tissue derivatives, cell imaging, computational methods and intelligent bioreactor design as a way towards understanding tissue cross talk and how this cross talk is used to orchestrate systemic physiology. The applications span from disease models to alternatives to animal testing. In this context, her research experience encompasses cellular biotechnology, biomolecular films, surface engineering, and biosensing to microfabrication and biomaterials for tissue engineering. The work on organ and organoid models, sensors, biosensors and tissue engineering is undertaken in collaboration with a number of biological and clinical scientists at the Institute of Clinical Physiology (CNR) and the Department of Translational Medicine and is testament to the transdisciplinary nature of her research.

Arti Ahluwalia is author of over 150 peer-reviewed publications and of several patents on microfabrication and on microfabricated multicompartment bioreactors, now commercial products of 2 companies (Kirkstall Ltd, IVTech srl.) she co-founded. Current projects are on tissue regeneration, biosensing, bioreactors, in-vitro models of metabolic disease and ageing (SINERGIA), biomimetic systems for the replacement of animal tests and nanotoxicology (Patrols), advanced imaging (DataBrain, SENSEI) and open biomedical engineering in education (UBORA, ABEM).

