Ming Lei

Ming Lei is Professor of Physiology and Pharmacology in the Department of Pharmacology at the University of Oxford and an internationally recognised leader in cardiac electrophysiology. His research has made seminal contributions to understanding the physiological and pathophysiological mechanisms governing electrical activity and calcium handling in the heart.

Professor Lei has made a series of influential discoveries in cardiac physiology and pharmacology. He identified essential roles for the voltage-gated sodium channels Nav1.1 and Nav1.5 in sinus node pacemaking and conduction, challenging established paradigms and establishing mechanistic links between Nav1.5 mutations and sinus node dysfunction. He further defined p21-activated kinase 1 (Pak1) as a key signalling hub regulating cardiomyocyte excitation and homeostasis, leading to its recognition as a novel therapeutic target and the development of new therapeutic strategies for hypertrophic heart disease. More recently, he discovered a previously unreported Dbh^{+} catecholaminergic cardiomyocyte population, prompting a paradigm shift in current concepts of cardiomyocyte function.

He led the comprehensive modernisation of antiarrhythmic drug classification in 2018, replacing the Vaughan Williams system; its international adoption in the 2025 European Heart Rhythm Association Clinical Consensus reflects its substantial clinical impact. Professor Lei has published approximately 170 peer-reviewed articles in leading journals including Cell, Nautre Biotech, Nature Chem Eng, Nature Communications, Circulation and Circ Res, delivered over 30 keynote and plenary lectures, serves on editorial boards of major journals, and has received extensive competitive funding from national and international agencies. He was recently awarded the Mabel FitzGerald Prize by The Physiological Society.