Professor Elizabeth New

BSc(Adv) MSc Sydney; PhD Dunelm

Professor

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Details

Member of Sydney Institute of Agriculture
Member of Sydney Southeast Asia Centre
Member of The Drug Discovery Initiative
Member of The University of Sydney Nano Institute

Websites

New Research Group
Contact Details

Biographical details

- BSc (Adv, Hons1 and Medal), University of Sydney, 2005
- MSc, University of Sydney, 2007
- PhD, Durham University, 2009
- Royal Commission for the Exhibition of 1851 Research Fellow, University of California at Berkeley, 2010-2011
- ARC DECRA Fellow, 2012-2014
- Lecturer, 2015
- Senior Lecturer and Westpac Research Fellow, 2016-2017
- Associate Professor, 2018
- Professor, 2021

Research interests

- Chemical biology

- Small molecule fluorescent probes
- Bioinorganic chemistry
- Molecular imaging
- Redox sensing
- Metal ion sensing
- Fluorescent sensor arrays

Our research involves developing fluorescent sensors that enable us to better understand medicine and the environment. Specific interests include:

- Fluorescent sensor arrays for clinical diagnostics and environmental analysis
- Sensors for redox imbalances (hypoxia and oxidative stress) within cells
- The interaction of exogenous molecules (drugs, toxins) with cells
- Multimodal imaging agents

For more information please visit:http://www.chem.usyd.edu.au/~enew/

Current projects

- MRI probes for oxidative stress
- Fluorescent sensors for redox state
- Fluorescent sensors for metal ions in biology
- Fluorescent sensing methods for platinum
- Targeted fluorescent sensors for studying oxidative stress within sub-cellular organelles
- Understanding the cellular effects of platinum-based anticancer agents
- Bimodal fluorescence-PET imaging agents for brain disorders
- Bimodal agents for confocal fluorescence microscopy and X-ray fluorescence microscopy
- Uncovering the chemical environments that promote yeast mating
- Quantification of blood levels of cisplatin and analogues following chemotherapy

Awards and honours

- Society for Biological Inorganic Chemistry Early Career Award (2023)
- Australian Financial Review Emerging Leader in Higher Education (2022)

- Peter Andrews Award for Innovation in Medicinal Chemistry/Chemical Biology, RACI (2022)
- Vice Chancellor's Award for Outstanding Mentorship and Leadership (2022)
- Fellowship of the Royal Society of Chemistry (2021)
- Chemosensors Young Investigator Award (2020)
- Malcolm McIntosh Prize for Physical Scientist of the Year (2019)
- Le Fèvre Medal, Australian Academy of Science and Royal Australian Chemical Institute (2019)
- Outstanding Achievements of Young Alumni Award, University of Sydney (2019)
- Senior Fellowship of the Higher Education Academy (2019)
- Sargeson Lectureship, RACI Inorganic Division (2019)
- Edgeworth David Medal, Royal Society of New South Wales (2018)
- Australian Museum Eureka Prize '3M Emerging Leader', 2018
- Women's Agenda Leadership Awards, Emerging Leader in Science, Health and Medicine, Finalist, 2018
- Fellowship of the Royal Society of New South Wales, 2018
- Periodic Table for Younger Chemists, selected to represent Iron, International Union of Pure and Applied Chemists
- RACI Rennie Medal, 2017
- ChemComm Emerging Investigator Lectureship, 2017
- Fellow of the Royal Australian Chemical Institute, 2017
- RACI Educator of the Year Award, 2016
- NSW Early Career Researcher of the Year, 2016
- Centenary Lawrence Creative Prize, Runner-up, 2016
- Office of Learning and Teaching (OLT) Teaching Excellence Award (Early Career), 2015
- Elected to the Australian Academy of Science's Early- and Mid-Career (EMCR) Forum executive team, 2015
- Young Tall Poppy Science Award, 2015
- Selby Research Award, 2015
- Vice-Chancellor award for Outstanding Teaching (Early Career), 2015
- RACI Nyholm Lectureship, 2014-2015
- Asian Biological Inorganic Chemistry Early Career Research Award, 2014

- Dalton Young Researchers Award, Royal Society of Chemistry, 2011
- The University Medal, University of Sydney, 2005

PhD and master's project opportunities

- Fluorescent sensors for oxidative stress
- Fluorescent sensing of labile metal pools
- Fluorescent sensing arrays to study metal ions in the environment

Current research students

Project title	Research student
Fluorescent sensing arrays for clinical application	Karandeep GROVER
Fluorescent nanosensors for metal ions	Haobo GUO
Enhanced Protein Structural Analysis Using Chiral Cyclen-Lanthanide Complexes	Jet METCALFE
Phenylboronic acid-based fluorescent fluorophores for saccharide detection.	Jukkrit NOOTEM
Fluorescent methods of tagging proteins to understand structure and function	Nusra NUSRA
Fluorescent assays for oxidative stress	Aedena Remy REMY

Synthesis of Mechanically Matched Mesh for Tendon and Ligament Replacement Using 3D Printing Technology	Shuning WANG
Fluorescent sensing approaches to understand biological processes	Tahir WASEEM

Publications

Download citations: PDF; RTF; Endnote

- **By Type**
- By Year

Expand all

Book Chapters

- Kolanowski, J., Shen, C., New, E. (2017). Fluorescent probes for the analysis of labile metals in brain cells. In Anthony R. White (Eds.), *Metals in the Brain: Measurement and Imaging*, (pp. 51-70). New York: Humana Press. [More Information]
- Lippert, A., Dickinson, B., New, E. (2015). Imaging Mitochondrial Hydrogen Peroxide in Living Cells. In Volkmar Weissig, Marvin Edeas (Eds.), *Mitochondrial Medicine: Volume I, Probing Mitochondrial Function*, (pp. 231-243). New York: Humana Press. [More Information]
- O'Neill, E., New, E. (2014). Luminescent Lanthanoid Probes. In Tim Storr (Eds.), *Ligand Design in Medicinal Inorganic Chemistry*, (pp. 113-143). Chichester, United Kingdom: John Wiley & Sons. [More Information]

Journals

- Zhu, J., Tan, N., Kikuchi, K., Kaur, A., New, E. (2024). BODIPY-based Fluorescent Indicators for Lipid Droplets. *Analysis & Sensing*, 4(1). [More Information]
- Voss, S., Adair, L., Achazi, K., Kim, H., Bergemann, S., Bartenschlager, R., New, E., Rademann, J., Nitsche, C. (2023). Cell-Penetrating Peptide-Bismuth Bicycles**. *Angewandte Chemie - International Edition*. [More Information]

- Mohammed Asiri, S., Levina, A., New, E., Lay, P. (2023). Investigations of cellular copper metabolism in ovarian cancer cells using a ratiometric fluorescent copper dye. *Journal of Biological Inorganic Chemistry*, 28(1), 43-55. [More Information]

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Selected Grants

2023

- *Radiochemistry Facility for Biomolecule Characterisation in Living Systems*, Kassiou M, New E, Codd R, Meikle S, Calamante F, Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF)

2022

- *The first tool to quantify brain copper during life*, Double K, New E, Meikle S, National Health and Medical Research Council (NHMRC)/Ideas Grant