Research Interests

My main research areas are in Cell Signalling and Mass Spectrometry. I head the Integrative Cell Signaling and Proteomics Group whose main interest is in understanding how kinases contribute to the onset and progression of cancer.

- We have developed new analytical approaches to quantify the activity of kinases in vivo so as to better define their relative contribution in promoting tumourigenesis.
- We aim to identify associations between kinase pathway activation and cancer cell phenotypes, thus defining novel drug targets and markers of responses to therapy.
- Profiling biochemical pathway activities in an untargeted fashion will lead to a better understanding of cancer biology, and will assist in the rationalization of why not all cancer patients respond to therapy equally well. This, in turn, will contribute to the advance of personalized cancer therapies.

Major Funders

- Cancer Research UK
- Barts and the London Charity

Contact Details

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Recent Publications

- Rajeeve, V., Vendrell, I., Wilkes, E., Torbett, N., and **Cutillas, P**. **R.** (2014) Cross-species Proteomics Reveals Specific Modulation of Signaling in Cancer and Stromal Cells by Phosphoinositide 3-kinase (PI3K) Inhibitors. *Molecular & cellular proteomics : MCP 13, 1457-1470.*

- Casado P, Alcolea MP, Iorio F, Rodriguez-Prados JC, Saez-Rodriguez J, Vanhaesebroeck B, Joel S**, Cutillas PR.** Phosphoproteomics data classify haematological cancer cell lines according to tumour type and sensitivity to kinase inhibitors. Genome Biology 2013; 13:R37

- Casado, P, Rodríguez-Prados JC, Cosulich SC, Guichard, S, Vanhaesebroeck B, Joel S, **Cutillas PR**. Kinase-Substrate Enrichment Analysis provides insights into the heterogeneity of signaling pathway activation in leukemia cells. Science Signaling 2013;3: rs6

- Alcolea MP, Casado P, Rodríguez-Prados JC, Vanhaesebroeck B, **Cutillas PR**.Phosphoproteomic analysis of leukemia cells under basal and drug-treated conditions identifies markers of kinase pathway activation and mechanisms of resistance. Mol Cell Proteomics. 2012 Aug;11(8):453-66.

- Beltran L, Chaussade C, Vanhaesebroeck B, **Cutillas PR.** Calpain interacts with class IA phosphoinositide 3-kinases regulating their stability and signaling activity. *Proc Natl Acad Sci USA.* 2011; 108(39):16217-22.

- **Cutillas PR,** Jørgensen C. Biological signalling activity measurements using mass spectrometry. *Biochem J.* 2011 Feb 11;434(2):189-99.