Prof. Peter Sicinski: Lectures in St Petersburg State University (23-25 April, 2014).

Lecture 1. Analyses of cell cycle machinery using knockout mice.
It has been a dogma in the cell cycle field that cyclins and cyclin-dependent kinases are essential for cell division. In my lecture I will describe how our experiments challenged this dogma. I will describe how our understanding of the core cell cycle machinery changed during the past 10 years, and what are the implications for cancer treatment.

Lecture 2. Targeting cell cycle machinery for cancer treatment.
Cyclins and cyclin-dependent kinases are overexpressed in a very large number of human cancers. For example, cyclin D1 is overexpressed in over 50% of breast cancers. The cyclin D1 gene represents the second most frequently amplified locus across all human cancer types. In my lecture I will describe out attempts to target cell cycle proteins for cancer treatment.

Lecture 3. Analyses of cell cycle proteins using novel genomic and proteomic approaches.
The sequencing of the human and mouse genomes offer an unprecedented opportunity to study protein function at a genome and proteome-wide scale. In my lecture I will describe novel genomic and proteomic approaches, developed by my laboratory, to study the molecular function of cell cycle proteins in a living mouse.

Lecture 4. A novel function of cyclin E in the brain.
Cyclin E is a component of the core cell cycle machinery. Cyclin E expression is normally restricted to proliferating cells. However, high levels of cyclin E are expressed in the adult brain. The function of cyclin E in quiescent, postmitotic nervous system remained a mystery. In my lecture I will describe how we used a combination of in vivo quantitative proteomics and analyses of cyclin E knockout mice to demonstrate an unexpected role for cyclin E in synapse function and in memory formation.

Lectures start at 5:30pm.