

Patterns of regulation finding evidence of complex regulatory networks in large molecular and genetic datasets from cancer

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Cancer is a disease of disrupted systems, in which the circuits that control cellular behaviour, from proliferation to cell death and metabolism, become disrupted. Understanding how cells regulate their behaviour, and how this regulation breaks down in cancer, is a fundamental challenge for cancer systems biology. We now know that the regulatory systems in cells are many-layered and dynamic, yet much of our data is based on single time points across very large numbers of samples. Here I will outline our efforts to identify signatures of regulatory processes in the complex, noisy, and highly-heterogeneous datasets that are abundant in cancer biology.