

Researchers report the cloning of a key group of human genes, the protein kinases

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Although the human genome has been sequenced, research into mechanism of action of genes has been hampered by the fact that most human genes have not been isolated. This is true for even the most common class of cancer-associated genes, the protein kinases, which mediate the majority of signaling events in cells by phosphorylating and modulating the activity of other proteins. It has been estimated by systematic gene sequencing efforts that up to a quarter of kinases may play a role in human cancers.

In a study published in the 2nd of May issue of *Cell*, a research teams led by Professor Jussi Taipale from the National Public Health Institute and University of Helsinki, Finland, Professor Olli Kallioniemi from Institute for Molecular Medicine Finland (FIMM), and Dr. Wei-Wu He from the US-based biotechnology company Origene Technologies, Inc., report cloning of nearly all predicted human protein kinase genes in functional form, and generation of a corresponding set of kinases lacking catalytic activity that are necessary for functional studies.

They further used the kinome collection in several high-throughput screens, including a screen which identified two novel kinases regulating the Hedgehog signaling pathway – a key pathway linked to multiple types of human cancer. In addition, together with the group of Dr. Päivi Ojala, University of Helsinki, they identified a novel kinase required for activation of Kaposi's sarcoma herpesvirus.

“The isolated kinase genes form a resource that scientist can now use to

systematically map kinase signaling networks in different cellular disease models. The kinases are also promising targets for therapeutic intervention in the treatment of various cancers”, Professor Taipale states.

Source: University of Helsinki

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