

Yale scientists map cell signaling network

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Yale University scientists have mapped, for the first time, the proteins and kinase signaling network that control how cells of higher organisms operate.

The researchers said their study is a breakthrough in understanding how proteins operate in different cell types under the control of master regulator molecules called protein kinases.

Although protein kinases are already important targets of cancer drugs, until recently it has been difficult to identify the proteins regulated by the kinases.

Led by Michael Snyder, a professor of molecular, cellular and developmental biology, the researchers focused on the expression and relationship between proteins of the yeast cell "proteome," or the proteins that are active in a cell.

Protein kinases act as regulator switches and modify their target proteins by adding a phosphate group to them. The process, called "phosphorylation," results in altered activity of the phosphorylated protein. It is estimated 30 percent of all proteins are regulated by that process.

The research is explained in this week's issue of the journal *Nature*.

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