Researchers develop compound to block signaling of cancer-causing protein

July 17 2011

Researchers at New York University's Department of Chemistry and NYU Langone Medical Center have developed a compound that blocks signaling from a protein implicated in many types of cancer. The compound is described in the latest issue of the journal *Nature Chemical Biology*.

The researchers examined signaling by receptor tyrosine kinase (RTK). Abnormal RTK signaling is a major underlying cause of various developmental disorders and diseases, including many forms of cancer. RTK signaling pathway employs interactions between proteins Sos and Ras, and accounts for a broad range of molecular changes that underlie various cancers and other diseases. Disrupting the Sos-Ras interaction, then, is crucial to stemming the production of cancer cells.

However, interactions between large protein molecules such as Ras and Sos have been difficult to modulate with artificial means. Through a series of experimental and computational analyses, the scientists hypothesized that by mimicking a key portion of Sos, they might disrupt its interactions with Ras. Specifically, they observed that Sos activates Ras through a helix—a critical portion of Sos that makes contact with Ras. Creation of this Sos mimetic required a method for locking correct helical shapes in synthetic strings of amino acids – a method previously developed at NYU School of Medicine.

Provided by New York University