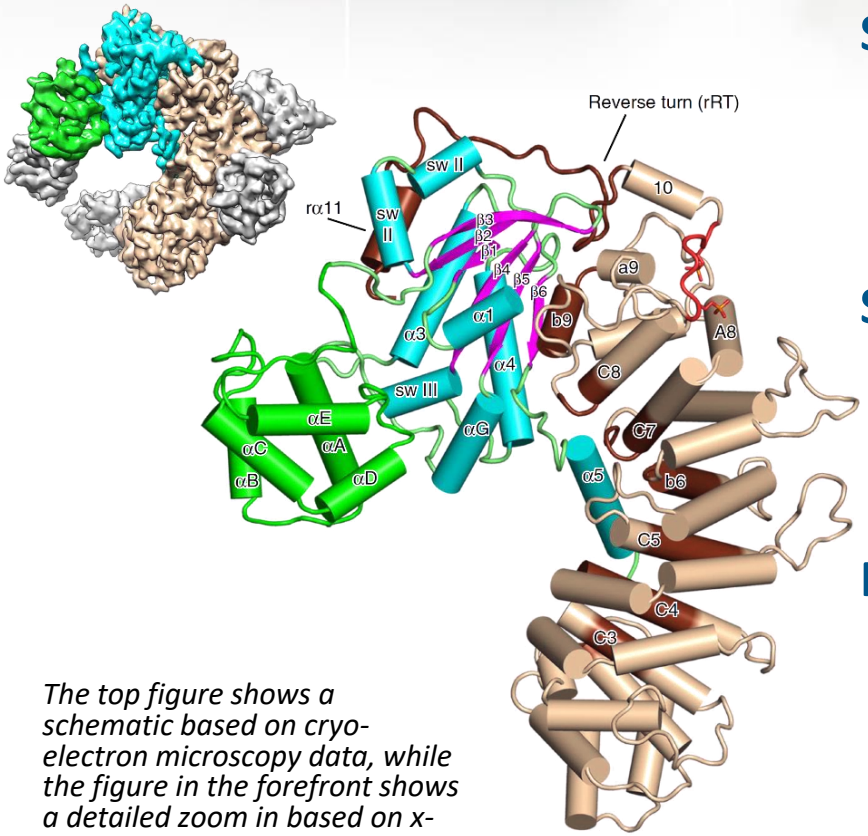
Understanding an Essential Chaperone Complex



The top figure shows a schematic based on cryo-electron microscopy data, while the figure in the forefront shows a detailed zoom in based on x-ray diffraction data.

Scientific Achievement

The structure of the chaperone Ric-8A bound to G protein alpha reveals the mechanism for Gα activation through phosphorylation of Ric-8A.

Significance and Impact

Ric-8A is a protein involved in the regulation of cell division that is essential for embryo development. This structure reveals how it acts as a chaperone for Gα in this process.

Research Details

- Ric-8A protein is a Guanine Nucleotide Exchange Factor and serves as a chaperone for G protein alpha (Gα).
- X-ray crystallography performed at the FMX beamline at NSLS-II, along with further x-ray studies at APS and SSRL, were complemented by cryo-electron microscopy studies.
- Results revealed a unique structure of the Ric-8A and Gα complex, which was shown to be stabilized by phosphorylation of Ric-8A.

L. J. McClelland, K. Zhang, T.-C. Mou, J. Johnston, C. Yates-Hansen, S. Li, C. J. Thomas, T. I. Doukov, S. Triest, A. Wohlkonig, G. G. Tall, J. Steyaert, W. Chiu, S. R. Sprang. *Nat. Comm.* **11**, 1077 (2020).

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