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# Molecular mechanism for modulation of a multiple transcription factor complex formed on enhancer site upon phosphorylation

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Transcriptional regulation is a fundamental mechanism for cell proliferation and differentiation. A major player in this processis a member of transcription factors (TFs). Activities of TFs are modulated by chemical modifications such as phosphorylation through cell signaling pathways directing cell functions. Molecular mechanisms of regulation for the functional high-order assembly consisting of multiple TFs and enhancer DNA (enhanceosome) under cell signaling are largely unknown. So far, we investigated changes in assembly state of an enhanceosome upon a TF's phosphorylation, using crystallographical, biophysical, and molecular dynamical analyses. Here, we will illustrate the case of Ets1 in non-phosphorylated and phosphorylated forms on its target gene enhancers with or without its partner TFs, Runx1/CBFβ or Pax5, as an example. A structure-function relationship of a TF-DNA assembly and an effect by phosphorylation will be discussed.

## Biography

Kazuhiro Ogata has completed his PhD from Yokohama City University in 1992 and Postdoctoral studies from RIKEN Tsukuba Institute. In 1997, he became the leader of the regulation of protein function project, Kanagawa Academy of Science and Technology (KAST), and from 2001, the Professor and Chairperson of Department of Biochemistry, Yokohama City University Graduate School of Medicine. He has published papers in *JMB, PNAS, NSMB*, and Cell, and had been serving as an Editorial Board Member of BBRC (2009-2010).

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