F. SATO LAB.

[Innovative Simulation of Bio and Nano Molecules]

Center for Research on Innovative Simulation Software

Computational Biomolecular Science

Mechanical Engineering department   http://www.ciss.iis.u-tokyo.ac.jp, http://www.satolab.iis.u-tokyo.ac.jp

Protein Design by Quantum Chemical Calculation
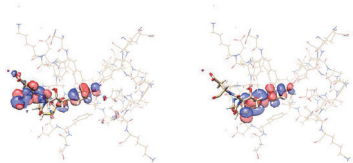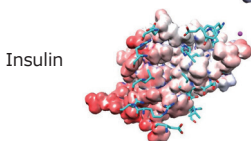
Quantum chemical calculation software "ProteinDF/QCLO" has been developed,
where canonical molecular orbitals of protein are computable.
https://proteindf.github.io/
Protein design is now performed by these methods.
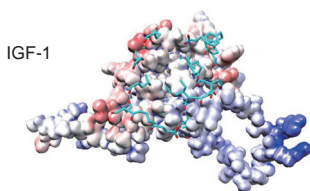
IGF-1

HOMO (left) and LUMO (right) of
optimized structure of pCA

Insulin

Interaction sites between IGF-1 and IGF-1R
(above), between insulin and IGF 1R (below).
ESP is drawn on each surface.

HOMO-3 (left) and LUMO (right) of
pCA+35AA model of PYP

Textbooks (in Japanese)

Institute of Industrial Science, The University of Tokyo