

Motivation

Proteins in our body perform essential biological roles (e.g. memory formation and learning). Structural changes in proteins are important in terms of the performance of these biological functions, and so we analyze the topology and structural changes in proteins to reveal their functions.

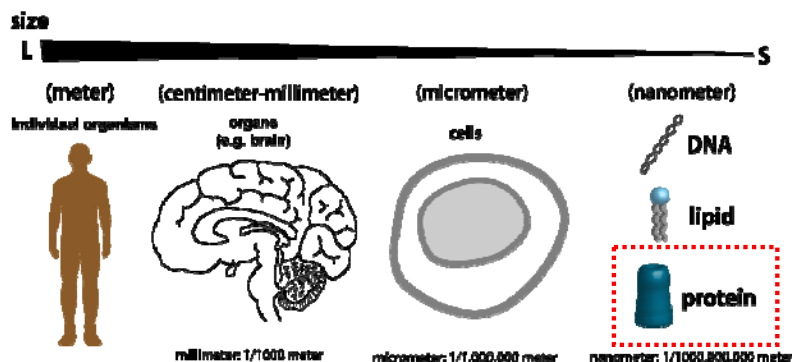
Originality

We succeed in observing the topology and structural changes in single proteins that are difficult to observe using other methods. The present study clarified the relationship between the structure and functions of the proteins.

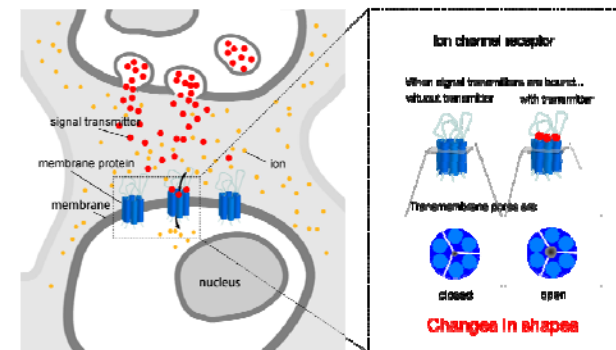
Impact

Proteins have important functions corresponding to biological roles. By using our know-how and these proteins, we can fabricate bio-nano devices capable of detecting biological functions.

Components of living organisms

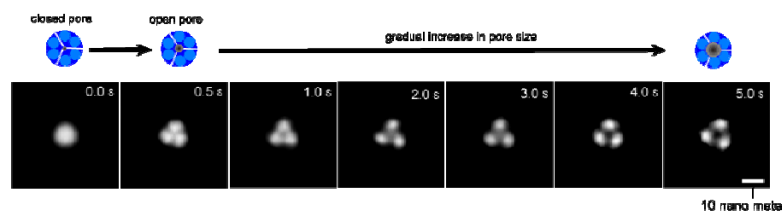


Example protein function: Intercellular signaling



Relationships between structure and functions in proteins

A Time-lapse observation of structural changes in single proteins



B Observation of function-related structures in proteins

