3D Structure Unraveled: a Complex of Sea Hare-derived Substance and Actin

Aplyronine A, a natural product with stronger antitumor effect than any other chemicals identified so far, was isolated from the sea hare, a molluscan living in the sea.

It has been understood that aplyronine A shows a potent antitumor effect as well as an activity of depolymerizing F-actin, a filamentous protein that mechanically supports the cell structure. We utilized beamlines at SPring-8, the large synchrotron radiation facility, to find out the three-dimensional complex structure of aplyronine A and a monomeric actin, which composes F-actin. The gained fine structural information clearly shows where and how aplyronine A binds to a monomeric actin.

Further investigation on the interaction mechanism will be believed to pave the way for developing new antitumor drugs.

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