The Association-Induction Hypothesis

Heir to the faulted old protoplasm concept, the association-induction hypothesis is a unifying theory of all living phenomena. Introduced half a century ago, the theory has been tested widely and verified without major setback. Five books respectively published in 1962, 1984, 1992, 2001 and 2013 as well as over 200 articles chronicle the details. In this theory, the smallest unit of life is not the cell but a tiny structure called nano-protoplasm unit (NPU). Each NPU can exist in one of two alternative states: (1) In the resting living state, all the major components including water, protein and the potassium ion (K^+) are not free (as widely taught in textbooks) but physically and electronically connected directly or indirectly to all the other components. (2) In the active living state, water and K^+ are set free (transiently.) Each NPU contains, as a rule, only one single protein molecule specific to its kind of NPU. A typical NPU from the mature human red blood cell is described by the formula: $(Hb)_1(H_2O)_{7000}(K^+)_{20}(ATP)_1$. Hb stands for the characteristic protein, hemoglobin. The numerical subscript attached to each bracketed item refers to the number of that item in one NPU. Bulk-phase water polarized and oriented by the fully extended protein partially excludes large hydrated ions like Na^+. Thus in most living cells like muscle, nerve and red blood cell with a single type of cell membrane, it is superfluous to postulate a sodium pump to keep the cell level of Na^+ low. Dynamically structured water does it perfectly without continued energy expenditure, which rigorous examinations proved beyond what the Law of Conservation of Energy permits. The end product of all energy metabolisms is adenosine tri-phosphate or for short, ATP (, which does not contain high usable energy as once widely but erroneously believed). As the major control agent or principal cardinal adsorbent, ATP plays a central role in the control of all living phenomena. Like all cardinal adsorbents, ATP achieves its control by means of a combination of both short-range electronic effect and falling-domino-like long-range effect. In broad terms, life comprises being alive and engaging in life activities. ATP's continued binding as such onto the NPU keeps alive the NPU as well as the ladder of all the increasingly larger living structures like cells, organs and organisms built upon the foundation of vast number of NPU's. To show how small an NPU is, I may mention that each single red blood cell contains about 300,000,000 NPU's. Reversible ATP disappearance spells life activity. Irreversibility of similar vanishing of ATP leads to death.

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