MBP and Innate Immunity

I enjoyed the timely and informative Research News article by Clare Thompson about mannose-binding protein (MBP) (21 July, p. 301). MBP is a lectin found in serum, and quite a number of observations point to its importance for the innate immune defense against a variety of microorganisms. This defense does not depend on priming of the immune system, as is characteristic for acquired immunity, for example, after vaccinations.

Many important investigators and their contributions to this field are mentioned by Thompson. However, credit is not given to some Japanese groups who made decisive contributions. Kawasaki's group discovered and characterized the lectin in liver and serum (*1*). Later they and another Japanese group demonstrated its capacity to activate the complement system (*2*), crucial for the antimicrobial activity of the lectin. It was also Japanese investigators who characterized a new enzyme necessary for this activation (*3*). This information showed that MBP is the initiator of a novel complement activation pathway, referred to as the lectin pathway.

The Japanese named the protein "mannan-binding protein," as its discovery and purification were dependent on its calcium-dependent binding to the polysaccharide mannan, which is extracted from baker's yeast. The binding to carbohydrates classified the protein as a lectin, and its biological functions require its binding to carbohydrates on microorganisms. Mannan is composed mainly of polymers of the monosaccharide mannose, and American and British researchers, who entered the field later, renamed the protein "mannose-binding protein." They used the monosaccharide mannose instead of mannan for the purification of the lectin, but there seems to be no scientific reason for maintaining this new name, as it clearly is the same lectin in Japan and elsewhere. The biological function of the protein is mediated through binding to oligo- and polysaccharides rather than monosaccharides. Examination of binding to a variety of monosaccharides even shows that mannose is not the monosaccharide bound with highest affinity by MBP.

We all know the importance of names; I suggest that one should acknowledge the crucial contributions of the Japanese researchers, as well as the right of the discoverer to name new entities, and return to using the original name.

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EMF Studies

Gary Taubes' News article "Another blow weakens EMF-cancer link" (29 Sept., p. 1816) deals with a controversy regarding EMF (electromagnetic field)–stimulated transcription in HL60 cells that is still being debated at scientific meetings and in scientific journals. There appear to be differences in the cells used by scientists on both sides of the issue, as well as differences in extraction techniques, that could account for the different results.

Many experimental studies showing EMF-stimulated changes in biosynthesis suggest that some concern is warranted. Of particular significance is the observation that changes in protein synthesis caused by