REPORT OF MEETING

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The C1q domain-containing protein from the ascidian *Botryllus schlosseri* manifests a cytokine-like behavio

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Genes encoding complement component 3 (C3) have been extensively investigated in invertebrate genomes and traced back in evolutionary history to the early metazoan radiation. However, other components of the complement system, such as those related to the classical activation pathway, are still not much investigated. Currently, the genes encoding for proteins with a C1q domain, probably the main components of the classical pathway, have been only partially investigated from an evolutionary perspective.

These genes exist in many of the sequenced genomes, from both vertebrates and invertebrates and functions have been described for some of the corresponding proteins.

A C1q-like gene have been identified in the medicinal leech *Hirudo medicinalis* where a C1q-like peptide elicits a chemotactic behavior that could be blocked using a human antibody against the gC1q receptor.

C1q-like genes have also been found in the urochordate *Ciona intestinalis* and the cephalocordate *Branchiostoma floridae* where it has been demonstrated that the globular domain is able to recognize and bind mammalian antibodies initiating the classical pathway of complement activation.

The globular head C1q domain is a lectin domain present in transcriptomes of amphioxus, lamprey, and several teleost fishes. Few of these putative C1q-like proteins have been characterized; however, they can bind to a variety of carbohydrates.

In *Botryllus schlosseri* we have found, in our EST colletion, a single transcript with C1q characteristics (BsC1q-like). The deduced protein contains two globular head C1q domains, a feature unknown in invertebrates. As regard Vertebrates, we can find a similar architecture only in mammals, in the so called C1q/TNF-related Protein 4 (CTRP4). This protein is very poorly studied and seems to be expressed in the hypothalamus and contribute to the modulation of food intake and body weight.

Our data, from the colonial ascidian, suggest a role for the BsC1q-like protein as mediator of the activation and degranulation of the cytotoxic hemocytes. Both ISH and ICC demonstrate that both cytotoxic morula cells and phagocytes express the BsC1q-like mRNA and protein; functional analyses demonstrate that the human antibody against globular head C1q is able to inhibit morula cell degranulation after bacterial challenge.

It is not yet clear if it is possible to considered this molecule as member of the complement system in *Botryllus* but future analyses will be directed to the study of the functional relationships between BsC3 and BsC1q-like as well as of the binding capabilities of the latter.