AMPHIOXUSNOS

Project ID: 293871
Funded under: FP7-PEOPLE

Study of Nitric Oxide Synthase in Amphioxus

From 2011-08-01 to 2015-07-31, closed project

Project details

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<th>Total cost:</th>
<th>Topic(s):</th>
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<td>EUR 100 000</td>
<td>FP7-PEOPLE-2011-CIG - Marie-Curie Action: &quot;Career Integration Grants&quot;</td>
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<th>EU contribution:</th>
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<td>EUR 100 000</td>
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<th>Coordinated in:</th>
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<td>Italy</td>
<td>MC-CIG - Support for training and career development of researcher (CIG)</td>
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Objective

It is clear that a conserved set of developmental genes is shared between animals, but it is becoming even more evident that changes in gene regulation rather than changes in gene function may have been involved in the origin of morphological novelties and complexity during animal evolution. The candidate is interested in the study of the Nitric Oxide Synthase (NOS) family evolution, its regulation during development and its biomedical importance being implicated in the physiopathology of many human diseases. Nitric oxide (NO) is an essential molecule to many physiological functions including neurotransmission, learning and memory, cardiovascular homeostasis, angiogenesis, immune response, development and apoptosis. NO, probably one of the oldest bioregulatory systems controlling metazoan physiology, is a diffusible highly reactive gas produced by the enzymatic conversion of L-arginine by Nitric Oxide Synthases (NOS).

The aim of the proposal is the study of the expression pattern and regulation of three different NOS genes in the chordate amphioxus, a marine invertebrate organism, in order to find out vertebrates ancestral functions. Amphioxus is the best available stand-in for the proximate invertebrate ancestor of the vertebrates, with a body plan and a genome that are vertebrate-like, but simpler. The comparison of multiple NO/NOs roles between different animal models would elucidate new functions as well as to improve our understanding of NOS function in both physiological and pathological conditions in humans.

The candidate will setup an amphioxus facility in the Host Institution, the Stazione Zoologica Anton Dohrn of Napoli (Italy), which is very suitable for the project’s success, being a marine laboratory with a long history in studies of comparative embryology and evolution. Availability of amphioxus within the Host Institute will allow the expansion of on-going research programs into comparative directions.

Related information

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<th>Vertebrate ancestor aids understanding of bioregulatory system</th>
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Coordinator

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See on map

EU contribution: EUR 100 000

Activity type: Research Organisations

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Subjects

Scientific Research

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