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BOOK OF ABSTRACTS



ENCONTRO DE
BIOTECNOLOGIA
MEDICINAL

18 DE MAIO DE 2018
ESCOLA SUPERIOR DE SAÚDE
POLITÉCNICO DO PORTO



IBERIAN CONGRESS ON
MEDICINAL
BIOTECHNOLOGY

MAY 18TH, 2018
SCHOOL OF HEALTH
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ISBN: 978-989-20-8533-3

Bioinformatic research of the gene "pregnane X receptor" (PXR) homologues in marine invertebrates

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Introduction: the xenobiotic detoxification enzymes are regulated, in mammals and other animals, by a specific group of nuclear receptors. In particular pregnane X receptor (PXR) has shown incredible versatility in recognizing a broad range of xenobiotics and natural compounds which function as agonists of the protein. However this regulatory mechanism is poorly characterized in marine invertebrates including bivalves. The objective of this work was, 1) to collect sequence information from PXR homologous genes already discovered, 2) to search for putative PXR homologous sequences in other marine species and in the marine mussel *Mytilus galloprovincialis*.

Materials and methods: We firstly conducted a literature search using PUBMED (<https://www.ncbi.nlm.nih.gov/pubmed/>) and SCOPUS (<https://www.scopus.com>) online search tools for published PXR gene sequences in marine invertebrates. Subsequently a search of homologous sequences deposited in NCBI (<https://www.ncbi.nlm.nih.gov/>) and UNIPROT (http://www.uniprot.org/) genomic databases was carried out using the respective BLAST tools of these databases. Finally, the transcriptome of the marine mussel *Mytilus galloprovincialis* was used to search for homologous PXR sequences in this particular species using the BLAST2GO tool.

Results and conclusions: At least 3 PXR genes have been so far identified and characterized from the marine species *Crassostrea virginica*, *Scrobicularia plana* and *Ciona intestinalis*. Our bioinformatic analysis allowed to select 7 gene sequences from different marine invertebrates, highly homologous to the *Scrobicularia plana* and *Crassostrea virginica* PXR genes. It was still possible to identify an homologous sequence of *Scrobicularia plana* gene in the transcriptome of the marine mussel *Mytilus galloprovincialis*. This work thereby supports previous studies that showed that PXR are conserved genes along the animal kingdom.

Keywords: Xenobiotic Metabolism, Marine Invertebrates, Nuclear Receptors