

## All Aboard

Strategic thinking in an Associate Laboratory

### Science Outreach, why do we need to show our work?

Most of us do Science because we like it, we enjoy finding a problem, thinking about how can we solve it and going to the lab or to the field and looking for answers. Whenever we find "that" answer, we need to show it to somebody, our colleague from the lab, our boss, our students or even our family and friends. But the answers we get from solving problems need to be shown to a broader audience. **Science Outreach** should be in the mind of every scientist, because although we can present our data at International Conferences and publish them in high rated journals, we tend to forget about the general public. These are those who pay their taxes that feed part of our research and who will benefit from the discoveries that excite us so much. So, any effort we can make to show our work to them will be one step more to approach Science to the endusers.



Vitor Vasconcelos

## Project of the Month

CIIMAR research lines in action

### Life under pressure: A transcriptomics approach to studying hydrostatic pressure adaptation in a shallow water teleost.

**PI: Jonathan Wilson** (LECOF). Consultant, MM Vijayan, University of Waterloo, Canada.

In the proposed work we intend to study the adaptation of the rainbow trout, (*Oncorhynchus mykiss*), a shallow water teleost fish, to a physiologically relevant hydrostatic pressure change (3 MPa). Hydrostatic pressure (HP) is an abiotic factor that is likely an important determinant for the vertical distribution and movement of fishes.

[More at www.ciimar.up.pt](http://www.ciimar.up.pt)



## What the paper says

Journal Club

### Not so spineless.

Y. Cho et al., "Chitosan produces potent neuroprotection and physiological recovery following spinal injury," *The Journal of Experimental Biology*, April 16, 2010, doi: 10.1242/jeb.035162. Richard Borgens and colleagues have demonstrated that chitosan, a modified form of chitin which is a common component of crustacean shell, is able to locate and repair damaged spinal cord tissue. Chitosan repaired the crushed membranes, and restore the spinal cord's ability to transmit electrical signals to the brain through a damaged region. The group was looking for a carbohydrate that was a biodegradable, non-toxic compound, equally effective at targeting and repairing damaged nerve membranes as polyethylene glycol (PEG), which unfortunately has potentially toxic breakdown products. This work holds potential promise as a therapeutic agent in the treatment of spinal cord injury however the mechanisms at work still need to be defined.



## Organism in Focus

*Ascophyllum Nodosum*



In the shores around Viana do Castelo it is possible to find the southernmost populations of the large brown seaweed *Ascophyllum nodosum*. This is an intertidal seaweed with fronds that can grow up more than 2 meters in length, although in Portugal rarely reach 1 meter. Each plant has long strap like fronds with central air bladders at regular intervals. During the reproductive period each frond bears several lateral receptacles. *Ascophyllum nodosum* is a dioecious, i.e. with separate male and female plants, long lived algae with a very slow growing rate and with high mortality of recruits during the first year of life. This species often bears turfs of the red epiphytic algae *Polysiphonia lanosa*. The species is very abundant in protected shores on the North Atlantic coastal areas, however the almost relict small populations around Viana do Castelo are probably threaten by the new climatic scenarios and human pressures like trampling (Araujo et al. 2009).

Araújo R, Vaselli S, Almeida M, Serrão E & Sousa-Pinto (2009). *Marine Ecology Progress Series* 378:81-92.

Francisco Arenas (Lab Coastal BioDiversity)

## Open Calls

### Funding Opportunities

#### Public Tender for Award of Grants for Individual Doctoral and Post Doctoral 2010—FCT

The competition is open between May 3 and September 6 and will have two evaluation cycles. The first cycle will evaluate all applications sealed up to 17 hours, Lisbon time, on 14th June 2010. The second cycle will evaluate all applications sealed between the period preceding and the 17 hours, Lisbon Time, the 6th of September 2010. The grants approved, which have been assessed after the first cycle, may commence no earlier than 1 October 2010; approved grants, which have been assessed after the second cycle, may commence no earlier than 1 January 2011.

All information available at: <http://alfa.fct.mctes.pt/apoios/bolsas/concursos/individuais2010.phtml.pt>

Warning: rules have changed regarding the eligibility of applications from foreign nationals.

Susana Moreira



## This month at...

### Events in the calendar

- ▶ **1/30th April Exhibition:** “Há pesca em Vila do Conde”- 9-19 h. CIIMAR entrance lounge.
- ▶ **8-9th** Colour Scientific Illustration Course – 2nd edition – 1st module.
- ▶ **10th Oceanus Seminar-** 14 h. CIIMAR Auditorium. Joana Silva, “Use of Alternative Protein Sources in Diets for Senegalese sole (*Solea senegalensis* Kaup, 1858) Juveniles.”
- ▶ **14th** Clime International Day
- ▶ **15/16th** Colour Scientific Illustration Course – 2nd edition – 2nd module
- ▶ **17th Neptune Seminar** – 11:30 CIIMAR Auditorium. Pedro Leão, “Portoamides: new cyanobacterial allelochemicals that influence planktonic community structuring”
- ▶ **22th** Biodiversity International Day
- ▶ **24th Oceanus Seminar-** 14 h. CIIMAR Auditorium – to be announced
- ▶ **29th** Energy National Day
- ▶ **30th** Fisherman Day

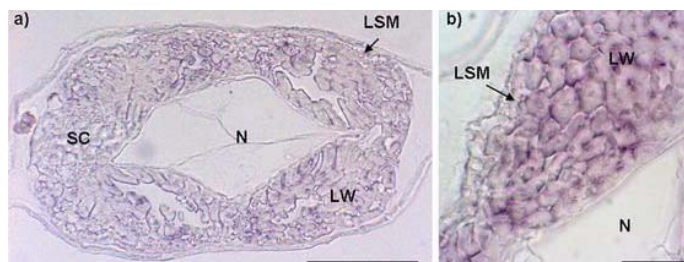
## Paper of the month

### CIIMAR publishes

#### Expression of the myosin light chains 1, 2 and 3 in the muscle of blackspot seabream (*Pagellus bogaraveo*, Brunnich), during development

Silva et al., 2010 [LECEMA Lab](#)

Previous studies on the histochemistry and immunoreactivity of fibres in lateral muscle of blackspot seabream indicated that there is a developmental transition in the composition of myofibrillar proteins, which presumably reflects changes in contractile function as the fish grows. We hypothesize that the phenomenon underscores age and spatial differences in the expression of myosin light chains (MLC), not studied yet in this species. In this study, we examined selected stages in the post-hatching development of the muscle of blackspot seabream: hatching (0 days), mouth opening (5 days), weaning (40 days) and juveniles (70 days). The spatial expression of embryonic MLC 1 (MLC1), 2 (MLC2) and 3 (MLC3) was studied by in situ hybridization. Overall, MLC expression patterns were overlapping and restricted to the fast muscle. At hatching and mouth opening, all MLC types were highly expressed throughout the musculature in fast muscle. The expression levels in fast muscle remained high until weaning when germinal zones appeared on the dorsal and ventral areas. The germinal zones were characterized by small-diameter fast fibres with high levels of MLC expression. This pattern persisted up to day 70, when the germinal zones disappeared and expression of MLCs was observed only in the smaller cells of the fast muscle mosaic. These results support our hypothesis and, together with previous immuno- and histochemistry results, allow a better understanding of the mechanism of muscle differentiation and growth in fish beyond larval stages, and form- the basis for further comparative and experimental studies with this economically relevant species.



## ( IN ) FORMATION BOGA



I had the opportunity to attend the first SPICAL (Portuguese Society for Sciences in Laboratory Animals) workshop on “Animal facility management”. There was good news regarding the new European Directive for Animal Use in Research which it will be published this year and all European governments will have a maximum of two years to incorporate those guidelines to their national legislation. I can list some of the most important changes:

Cephalopods will be added to the list of animals under this legislation; Decapods, that were also

discussed will be kept out; A continuous education/training in laboratory animal sciences will be mandatory. A local ethical committee will also be mandatory

The Aquatic Organisms Bioterium (BOGA) contest entitled “À pesca do logotipo” (“Fishing for a Logo”) will take place between the 1<sup>st</sup> and 31<sup>st</sup> of May 2010. The rules will be sent by e-mail. We will have three fantastic prizes:

- 1st- Kit Aquarium + 2 Pufferfish
- 2nd- Book “Aquaipaisagismo” + 2 Sealife tickets
- 3rd- One year subscription to “Bioaquaria” magazine + 2 “ELA” Tickets. We hope everybody will participate.

Hugo Santos



Have your say in [waves](#)

Contributions welcome. Contact Vitor Vasconcelos, Filipe Castro or Jonathan Wilson @ [waves.ciimar@gmail.com](mailto:waves.ciimar@gmail.com)