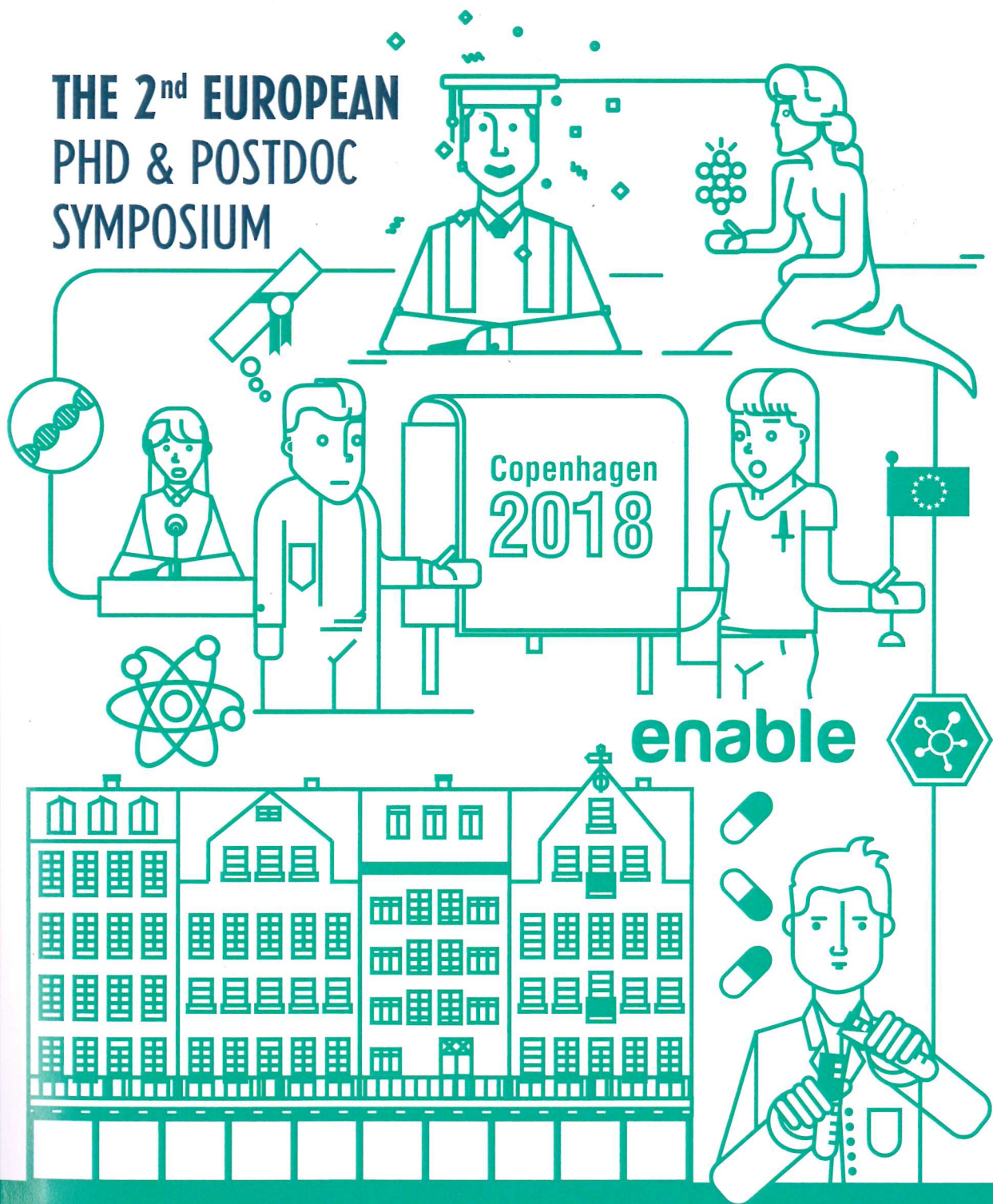


# THE 2<sup>nd</sup> EUROPEAN PHD & POSTDOC SYMPOSIUM



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 724115.

## Poster 80 - Anticancer effect and nutraceutical properties of microalgae and cyanobacteria from Fotosintetica & Microbiologica S.r.l. culture collection

Alberto Niccolai, Ignacio Gutiérrez del Río, Saúl Redondo Blanco, Felipe Lombó, Liliana Rodolfi, Natascia Biondi, Elisabetta Bigagli, Lorenzo Cinci, Cristina Luceri  
Mario R. Tredici

*University of Florence*

*alberto.niccolai@unifi.it*

The in vitro anticancer effect of four raw extracts from microalgae and cyanobacteria (REAp, REPp, REPt, RETiso) was evaluated on three different colorectal cancer cell lines (HT 29, HCT 116, and T84). The extracts were analyzed for their main pigment (phycocyanin, phycoerythrin, and fucoxanthin) content. The cancer cells were treated for 48 hours with the extracts and cell viability was evaluated using the neutral red assay. All the extracts strongly inhibited the three tested cell lines. The strongest inhibitory effect was shown by REPp.

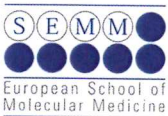
As second objective of this study, *Tisochrysis lutea* F&M-M36 and *Arthrospira platensis* F&M-C256 were selected to study their nutraceutical properties in a 1-month in vivo trial. Sprague Dawley rats were fed a diet containing 20% *A. platensis* F&M-C256 or 20% *T. lutea* F&M-M36 or a control diet (AIN-76). The microalgae rich-diets were both well tolerated, and palatability and digestibility were comparable to that of the control diet. Moreover, food consumption, clinical parameters, and body weights were not affected. A significant increase in HDL cholesterol and a decrease in plasma triglycerides were found in both microalgae-fed groups. In the *A. platensis* F&M-C256 fed group, a significantly increased expression of hepatic PPAR- $\alpha$  was observed. In *T. lutea* F&M-36-fed rats the hepatic expression of PPAR- $\beta$  and UCP-1 genes were significantly increased and a reduction of the expression of APOA-1 and LPL genes was observed, compared to controls. These data show that a diet supplemented with 20% of *A. platensis* F&M-C256 or *T. lutea* F&M-36 modulates the expression of genes involved in lipid metabolism, suggesting that these microorganisms are a promising source of nutraceuticals for the prevention of dyslipidemias.



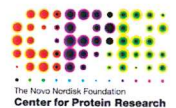


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