SHORT TERM SCIENTIFIC MISSION (STSM) – SCIENTIFIC REPORT

The STSM applicant submits this report for approval to the STSM coordinator

Action number: COST POSITIVE (FA 1403)

STSM title: “Identification of a novel and known retinoids after supplementation of nutritional precursors carotenoids to animals”

Planed STSM start and end date: 01/09/2017 to 31/10/2017

Grantee name: Dr. Ralph Rühl

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| **PURPOSE OF THE STSM/** |
| We wanted to analyse in cell culture and animal supplementation experiments the conversion of beta carotene to known retinoids. |

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| **DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS** |
| We established a novel HPLC-methodology for carotenoids, retinol and retinoic acids in a one run analysis at the analytical core facility of the University Vigo. The necessary equipment (HPLC MS) was present at the core facility. The cell culture and animal derived tissues after administration of carotenoids to animals were already performed by our cooperation partner Dr. Wojtek Krezel from University Strasbourg in France and were sent to Vigo and stored in -80C in their laboratories.Using our standard compounds including carotenoids and retinoids, we established the HPLC methodology as described for a one extraction and one run analysis of all compounds. We further calculated extraction ratios from biological matrix, and linearized the methodology for all analysed compounds. We extracted the delivered cell culture and animal derived organs and serum samples in the Vigo laboratories. Further using their HPLC-MS equipment, we analysed our 160 samples. Using computerised software we determined “areas under the curve” as comparable units for all retinoids and carotenoids analysed in these samples. |

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| **DESCRIPTION OF THE MAIN RESULTS OBTAINED*** We determine that various carotenoids are selective precursors of various endogenous retinoids. We must remark that the obtained data are partly strictly confidential and will be published later.
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| **FUTURE COLLABORATIONS (if applicable)**Based on the results obtained, we will further analyse human cohorts and additional treatments with our substances on in vitro and in vivo models. The exact plans are currently under development but will involve further cooperation with the Strasbourg and the Vigo group.  |
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