**EMBO Practical Course:  
“Metabolomics Bioinformatics in Human Health”**

**16-20 September 2019**

**IARC, Lyon, France**

**PROVISIONAL PROGRAMME**

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| **Monday 16 September 2019** | | |
| 9:00 - 9:30 | Registration |  |
| 9:30 - 9:45 | Welcome and introduction to IARC | IARC director |
| 9:45 - 10:00 | Overview of the course and mission statement | Reza Salek |
| 10:00 - 10:45 | Flash oral poster presentation by participants | All |
| 10:45 - 11:00 | *Coffee Break* |  |
| 11:00 - 11:45 | Flash oral poster presentation by participants | All |
| 11:45 - 12:45 | Metabolomics: From experimental design to data analysis (limitations and advantages) | Oscar Yanes |
| 12:45 - 14:15 | *Lunch* |  |
| 14:15 - 15:30 | Dissecting the multidisciplinary nature of an untargeted metabolomics workflow vs targeted | Oscar Yanes |
| 15:30 - 16:00 | *Break* |  |
| 16:00 - 17:30 | Experimental design - Group activity | Reza Salek |
| 17:30 - 18:30 | Experimental Design - Statistical point of view | Ron Wehrens |
| 18:30 - 19:30 | Welcome drinks and posters | All |
| 19:30 | Evening meal at IARC Restaurant |  |

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| **Tuesday 17 September 2019** | | |
| 09:00 - 09:05 | Overview of day |  |
| 09:05 - 10:30 | Analysis of LC-MS-based metabolomics data using XCMS | Pietro Franceschi |
| 10:30 - 11:00 | *Coffee Break* |  |
| 11:00 - 12:00 | Analysis of LC-MS-based metabolomics data using XCMS | Pietro Franceschi |
| 12:00 - 12:45 | Exploring LC-MS data matrix dealing with missing values | Samantha Riccadonna |
| 12:45 - 14:15 | *Lunch and posters* |  |
| 14:15 - 15:00 | Exploring LC-MS data matrix, visualisation and data filtering | Samantha Riccadonna |
| 15:00 - 16:00 | The whole story in real-time: MS data processing | Steffen Neumann |
| 16:00 - 16:30 | *Break* |  |
| 16:30 - 18:30 | The whole story in real-time: MS metabolite identification | Steffen Neumann |
| 18:30 - 19:30 | Discussion |  |
| 19:30 | *Evening meal at IARC Restaurant* |  |
| **Wednesday 18 September 2019** | | |
| 09:00 - 09:05 | Overview of day |  |
| 09:05 - 10:30 | GC-MS workflow; from data processing to metabolite identification | Maria Vinaixa |
| 10:30 - 11:00 | *Coffee Break (group photo)* |  |
| 11:00 - 12:45 | NMR and Computer-assisted structure elucidation | Christoph Steinbeck |

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| (Cont’d)  12:45 - 14:15 | *Lunch and posters* |  |
| 14:15 - 16:00 | Invited plenary talk | Ines Thiele |
| 16:00 - 16:30 | *Break* |  |
| 16:30 - 18:30 | Metabolomics data analysis in the context of metabolic networks | Fabien Jourdan |
| 18:30 - 19:30 | Discussion |  |
| 19:30 | *Evening meal at IARC Restaurant* |  |
| **Thursday 19 September 2019** | | |
| 09:00 - 09:05 | Overview of day |  |
| 09:05 - 10:30 | Simple statistics, QC, data normalisation and scaling | Ron Wehrens |
| 10:30 - 11:00 | *Coffee Break* |  |
| 11:00 - 12:45 | Multivariate statistics: only the brave | Ron Wehrens |
| 12:45 - 14:15 | *Lunch and posters* |  |
| 14:15 - 16:00 | Data fusion and batch correction | Johan Westerhuis |
| 16:00 - 16:30 | *Break* |  |
| 16:30 - 18:00 | Invited Plenary Talk | David Wishart |
| 18:00 | Transport to Lyon |  |
| 18:30 - 19:30 | Free time in Lyon |  |
| 19:30 - 22:00 | *Gala reception and dinner* |  |
| 22:15 | Transport back to the accommodation |  |

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| **Friday 20 September 2019** | | |
| 09:00 - 09:05 | Overview of day |  |
| 09:05 - 10:30 | Deciphering metabolism using Stable Isotope Resolved Metabolomics (SIRM) using GC-MS | Silvia Marin |
| 10:30 - 11:00 | *Coffee Break* |  |
| 11:00 - 12:45 | Metabolomics flux with applications in Cancer | Marta Cascante & Igor Marin De Mas |
| 12:45 - 14:15 | *Lunch* |  |
| 14:15 - 15:30 | FAIR Metabolomics, metabolomics resources and reproducibility, are we there? | Reza Salek |
| 15:30 - 15:45 | Course feedback and wrap up | IARC staff |
| 15:45 | End of course |  |
| 16:00 | Departure |  |