

**TRAINING SCHOOL: "ADVANCED TRAINING IN SYNTHESIS AND APPLICATIONS OF MULTIVALENT
GLYCONANOMATERIALS"**

COST & SynBioCarb March 29 – April 1, 2020; Czech Academy of Sciences, Prague, Czech Republic

<https://biotrans.mbu.cas.cz/cost-actions/cost-action-ca18132/cost-ca18132-wg1-workshop-synbiocarb-training-school/>

Tuesday 29th March COST TRAINING SCHOOL (Institute of Molecular Genetics, Building F)

08.30 - 09.00 Registration

09.00 - 09.20 Welcome – M. C. Galan, B. W. Turnbull, V. Kren

09.20 - 11.00 SynBIOcarb ESR Individual Presentations; Chair: Dajana Kolanović

09.20 – 09.40 O-1 Laia Saltor Núñez (Leeds, UK) - Derivatization of hyaluronan for mucin-like structures in glycoalyx models (P-2)

09.40 – 10.00 O-2 Chunyue (Spring) Wang (Leeds, UK) - Superselective targeting of tumour cells

10.00 – 10.20 O-3 Lina Siukstaite (Freiburg, DE) - The two sweet sides of janus lectin drive crosslinking of liposomes to cancer cells and material uptake

10.20 – 10.40 O-4 Francesca Rosato (Freiburg, DE) - A clickable lectinbody activates CD8+ cytotoxic T cells and induces cancer cell death (P-4)

10.40 – 11.00 O-5 Simona Notova (Grenoble, FR) - Punching holes in cancer cells: A pore-forming β -trefoil lectin with specificity for the tumor-related glycosphingolipid Gb3 (P-7)

11.00 - 11.30 Coffee Break, poster installation (registration)

11.30 - 13.15 SynBIOcarb ESR Individual Presentations; Chair: Rajeev Pasupuleti

11.30 – 11.50 O-6 Dylan Jabeguero (Grenoble, FR) - Expansion of synthetic glycobiology tools: Altering the donor specificity of a glycosyltransferase (P-5)

11.50 – 12.10 O-7 Dajana Kolanović (Vienna, AT) - Directed surface immobilization of single-chain galectin-1 improves its ligand binding (P-16)

12.10 – 12.30 O-8 Rajeev Pasupuleti (Vienna, AT) - Lectin-antibody Stx1B-OKT3 induces T cell triggered immune response against CD77+ tumor cells (P-18)

12.30 – 12.50 O-9 Juvissan Aguedo (Bratislava, SK) - Application of MXenes for high enrichment of N-glycans and differentiation of sialic acid linkages (P-15)

12.50 – 13.10 O-10 Paras Kundalia (Bratislava, SK) Lectin-based glycoprotein microarray: crucial parameters and application in cancer patients' sera glycoprofiling (P-17)

13.15 - 14.30 Lunch

14.30 - 15.30 Hot Topics in glycobiology (tutorials); Chair: Carmen M. Galan

14.30 - 14.50 T-1 Birte Svensson (Kgs. Lyngby, DK) - Rational enzyme design without structural knowledge: a sequence-based approach for efficient generation of trangucosylases **virtual**

14.50 - 15.10 T-2 Hot Topic 2: Rob Young (Blue Burgundy Ltd., UK) - **Title TBC**

15.10 - 15.30 T-3 Hot Topic 3: Rob Field (Manchester, UK) - **Title TBC**

15.30 - 18.00 Coffee Break, posters

16.00 - 17.00 External Advisory Board (EAB) ESR Tutorials

17.00 – 18.00 Poster session

18:00 - 21.00 Conference Dinner – get together (Institute of Molecular Genetics, Building F)

Wednesday 30th March COST TRAINING SCHOOL (Institute of Microbiology, Building A)

09.00 - 09.30 Registration

09.30 – 11.10 SynBIOcarb ESR Individual Presentations; Chair: Bruce Turnbull

09.30 – 09.50 O-11 Federica Vena (L'Orleans, FR) - Lectin array for quality control of recombinant biotherapeutic glycoproteins

09.50 – 10.10 O-12 Natalia Danielewicz (Vienna, AT) - Process development for high yield fermentation of active recombinant lectins expressed in *Escherichia coli*. (P-6)

10.10 – 10.30 O-13 Wenyue (Eva) Dai (Leeds, UK) - Assemble multiple CTB5 by coiled coil for GUV fusion *Virtual*

10.30 – 10.50 O-14 Spyridon Gatos (Lyngby, DK) - Novel strategies and technologies for the development of tumor therapeutic antibodies (P-22) *Virtual*

10.50 – 11.10 O-15 Ilaria Mainero Rocca (Lyngby, DK) - Glycoengineered Microbiome-based anti-infectives and novel-glycomic display systems (P-21) *Virtual*

11.10 – 12.10 Coffee break, posters (Institute of Molecular Genetics, Bd. F)

12.10 – 13.30 Hot Topics in multivalent glyconanomaterials; (Inst. Microbiol., Bd. A) Chair: P. Bojarová

12.10 - 12.30 T-4 Paul V. Murphy (Galway, IE) - Protecting group chemistry for synthetic glycoscience (tutorial)

12.30 - 12.50 T-5 Trinidad Velasco-Torrijos (Maynooth, IE) - Conjugation approaches for glycomaterials (tutorial)

12.50 - 13.10 O-16 Katherine F. Warfel (Evanston, US) - Cell-free protein synthesis: applications in synthetic glycobiology.

13.10 – 13.30 O-17 Ralf Richter (Leeds, UK) - A novel sliding interaction between the extracellular matrix polysaccharide hyaluronan and the lymphatic vessel endothelial receptor LYVE-1 that regulates immune cell trafficking

13.30 - 14.30 Lunch (Institute of Molecular Genetics, Bd. F)

14.30 - 15.30 COST TRAINING SCHOOL; (Institute of Microbiology, Bd. A) Chair: Paul V. Murphy

14.30 – 14.50 T-6 M. Carmen Galan (Bristol, UK) - Glycan-based carbon based nanomaterials: synthesis and applications (tutorial)

14.50 – 15.10 O-18 Manuel Gonzalez-Cuesta (Seville, ES) - Glycomimetic synthesis for biomedical applications.

15.10 – 15.30 O-19 Carina Dey (Aachen, DE) - Characterization of galectin fusion proteins with glycoprotein affinity columns and binding assays

15.30 - 16.30 Coffee Break, posters (Institute of Molecular Genetics, Bd. F)

16.30 - 18.00 COST TRAINING SCHOOL (Institute of Microbiology, Bd. A) Chair: Trinidad Velasco-Torrijos

16.30 – 16.50 T-7 Miluše Vlachová (Prague, CZ) - Biological methods of assessment of galectin-glyconanomaterial interactions (tutorial)

16.50 – 17.10 O-20 Francesco Milanesi (Florence, IT) - Synthetic receptors for carbohydrates: an effective tool to interfere in carbohydrates recognition

17.10 – 17.30 O-21 Michaela Hovorková (Prague, CZ) - Preparation of high-affinity galectin ligands and their multivalent effect

17.30 – 17.50 O-22 Irene Herrera González (Seville, ES) - Synthesis of sp²-iminosugar-based mannobioside glycomimetics ligands targeting c-type lectin receptors (P-10)

Free evening

Thursday 31st March COST TRAINING SCHOOL & Workshop ([Institute of Molecular Genetics, Bd. F](#))

09.00 - 09.30 Registration

09.30 - 10.40 COST TRAINING SCHOOL & Workshop sessions; Chair: Priyanka Sahariah

09.30 – 10.00 T-8 Pavla Bojarova (Prague, CZ) - Targeting galectins with high-affinity glycoconjugates - successes, challenges, and bottlenecks (tutorial)

10.00 – 10.20 O-23 Marcela Šišić (Zagreb, HR) - Functional glyconanomaterials for targeted drug delivery and surface recognition studies

10.20 – 10.40 O-24 Katharina Illenseer (Konstanz, DE) - Multivalent AB5 toxin ligands with a new design **(Changed to poster) FREE SLOT**

10.40 – 11.10 Coffee Break, posters ([Institute of Molecular Genetics](#))

11.10 – 13.00 COST TRAINING SCHOOL & Workshop sessions; Chair: Zdeněk Wimmer

10.10 – 11.30 O-25 David Vrbata (Prague, CZ) - Multivalent glycomimetics as inhibitors of galectin-3

11.30 – 11.50 O-26 Adamantia Apostolopoulou (Athens, GR) - *In vivo* tracking of radiolabeled nanostructures

11.50 – 12.10 O-27 Maria Psarrou (Crete, GR) - Polysaccharide-functionalized iron oxide nanoparticles for mRNA delivery

12.10 – 12.30 O-28 Joana Gonçalves (Aveiro, PT) - Development of magnetic composites for magnetic hyperthermia therapy and bone regeneration

12.30 – 12.50 O-29 Simon Johnson (Bristol, UK) - Syntheses of multivalent mucin-type O-glycan analogues for use as diagnostic probes

12.50 - 14.00 Lunch ([Institute of Molecular Genetics](#)) (posters to be removed)

14.00 – 17.00 Networking COST Working group 1

19:00 - 21:00 [Conference Dinner](#) – Břevnov Monastery

Friday 1st April COST Workshop ([Institute of Microbiology, building A](#))

09.00 - 09.30 Registration

09.30 - 11.00 COST sessions Chair: **Kateřina Valentová**

09.30 – 09.50 T-9 Priyanka Sahariah (Reykjavík, IS) - Chitosan peptide conjugates against bacterial biofilms (tutorial)

09.50 – 10.10 T-10 Vladimír Křen (Prague, CZ) - Enzymatic synthesis of glycoconjugates with glycosidases: Diglycosidase rutinosidase (tutorial)

10.10 – 10.30 O-30 Viktoria Heine (Prague, CZ) - Poly-LacNAc-decorated neo-glycoproteins and their interaction with tandem-repeat galectins

10.30 – 10.50 O-31 Ana Barra (Aveiro, PT) - Development of sustainable multifunctional bionanocomposite materials

10.50 – 11.10 O-33 Jack Schofield (Galway, IE) Fucosylation inhibition ameliorates inflammatory glycosylation & metabolism in corneal fibroblasts (P-20)

11.10 – 11.30 free slot

11.30 – 13.00 Coffee Break, packed lunch boxes and departure for travel ([Institute of Microbiology](#))

List of Posters

1. L. Siukstaite (Freiburg, D): The two sweet sides of janus lectin drive crosslinking of liposomes to cancer cells and material uptake. (O-3)
2. Ch. (Spring) Wang & L.S. Núñez (Leeds, UK): Derivatization of hyaluronan and their applications. (O-1)
3. K.F. Warfel (Evanston, US) A low-cost, thermostable, cell-free protein synthesis platform for on-demand production of glycoconjugate vaccines.
4. F. Rosato (Freiburg, D) A clickable lectin body activates CD8⁺ cytotoxic T cells and induces cancer cell death. (O-4)
5. D. Jabeguero (Grenoble, F) Expansion of synthetic glycobiology tools: Altering the donor specificity of a glycosyltransferase. (O-6)
6. N. Danielewicz (Vienna, A) Process development for high yield fermentation of active recombinant lectins expressed in *Escherichia coli*. (O-12)
7. S. Notova (Grenoble, F) Janus lectins and neo-lectins: engineering of new scaffolds and topology. (O-5)
8. G. M. Saladino (Stockholm, S) Single step synthesis of sugar ligand coated superparamagnetic iron oxide nanoparticles with antibacterial properties.
9. L. Fitzgerald (Galway, IE) Outcome of docking of some simple sialic acid derivatives to influenza hemagglutinin and synthesis of glycoclusters based on tetraphenylethylene scaffold.
10. I. Herrera González (Seville, E) Customizing c-type lectin binding profile with sp²-iminosugar-based pseudomannobioside. (O-21)
11. Z. Meszáros (Prague, CZ) Mutant hypertransglycosylating GH20 β -N-hexosaminidases for the synthesis of bioactive chitooligomers.
12. K. Brodsky (Prague, CZ) Rutinosidase and its application in the synthesis of glycoconjugates.
13. J. Červený (Prague, CZ) Biolayer interferometry – a great tool for decoding the kinetic of lectin-carbohydrate interaction.
14. D. Konvalinková (Prague, CZ) Glycocalix[4]arenes and their affinity to a galectin library.
15. J. Aguedo & F. Vena (Bratislava, SK; Orleans, FR) Rapid and high throughput methods for discrimination of sialic acids linkages in glycoproteins.
16. D. Kolanović (Graz, AT) Directed surface immobilization of single-chain galectin-1 improves its ligand binding. (O-7)
17. P. Kundalia (Bratislava, SK) Lectin-based glycoprotein microarray: crucial parameters and application in cancer patients' sera glycoprofiling. (O-10)
18. R. Pasupuleti (Vienna, AT) Lectin-antibody Stx1B-OKT3 induces T cell triggered immune response against CD77⁺ tumor cells. (O-8)
19. Wenyue Dai (Leeds, UK) Exploring structure-activity relationships of defined streptavidin-bacterial toxin assemblies that induce membrane crosslinking and fusion.
20. J. Schofield (Galway, IE) Fucosylation inhibition ameliorates inflammatory glycosylation & metabolism in corneal fibroblasts (O-33)
21. M. Rocca (Lyngby, DK) Glycoengineered Microbiome-based anti-infectives and novel-glycomic display systems (O-15)
22. S. Gatos (Lyngby, DK) Novel strategies and technologies for the development of tumor therapeutic antibodies
23. **O-24>>Poster** Katharina Illenseer (Konstanz, DE) - Multivalent AB5 toxin ligands with a new design