Block Course Biochemistry

Second half of the fall semester, 6 weeks, 15 credit points
5th Semester of the curriculum *Bachelor of Biology*,
requirement for "Major in Molecular Biology"

**Goal:**
The goal of the Biochemistry Block Course is to learn about current topics in Biochemistry and to experience state-of-the-art experimental methods, i.e., the theory and practice of modern Biochemistry. The course consists of a two-hour lecture early each morning followed by a laboratory practical for the rest of the day. Lecture notes and laboratory protocols are provided.

**Lecture topics:**
- Posttranslational Modifications
- Vesicular Transport
- Cytoskeleton
- Phagocytosis
- Receptors and Signal Transduction
- Hormones
- Oncogenes
- Cell Division, Growth and Death
- Lipid Modification of Proteins
- Protein Degradation
- Protein Folding & ERAD
- siRNA
- Genomics and Proteomics

**Metabolism:**
- Glycolysis and TCA cycle
- Fatty acid Metabolism and Ketone bodies
- Regulation of Metabolism
- Cell Organization and Solute Transport
- Pentose Phosphate Pathway and Glyoxylate Cycle
- Nitrogen Metabolism
- Oxidative Phosphorylation
- Photosynthesis and Photorespiration
- Central Metabolic Network
- Systems Biology of Metabolism

**Laboratory practicals:**
- Nucleic Acids: Basic Methods of DNA Manipulation and Analysis
- Purification of Lysozyme
- Gel Electrophoresis
- Subcellular Fractionation
- Yeast Proteomics
- Analysis of Gene Expression

**Organizer:**
Prof. Martin Spiess ([martin.spiess@unibas.ch](mailto:martin.spiess@unibas.ch))

**Lecturers:**
Prof. M. Hall, J. Pieters, A. Spang, M. Spiess, S. Treves, Drs. J. Gatfield, A. Schmidt
together with the entire staff of the 5th floor of the Biozentrum

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