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LABORATORY OF

STRUCTURAL BIOLOGY

protein crystallography, human carbonic anhydrase IX, antibody engineering

In the picture:
1. Milan Fábry | **2.** Jiří Brynda | **3.** Magdalena Hořejší | **4.** Michael Kugler | **5.** Vlastimil Král | **6.** Juraj Sedláček | **7.** Věra Mrkvičková | **8.** Irena Sieglová | **9. Pavlína Maloy Řezáčová** | **10.** Veronika Krejčiříková

The main interests of our group are structural studies of various proteins of biological or medicinal interest using protein crystallography. We use the structural knowledge in understanding the protein function and in some projects also in modulating its function by design of specific inhibitors.
In our structure-based drug discovery project, we target enzymes from pathogenic organisms as well as human enzymes (e.g., human nucleotidases or cancer-specific carbonic anhydrase IX); the knowledge of protein structures provides a platform for the rational design of specific inhibitors.
Our group also focuses on engineering recombinant antibody fragments of potential diagnostic use. We employ several approaches aiming at practical use of recombinant antibody fragments.

Selected recent papers:

Skerlova J, Kral V, Kachala M, Fabry M, Bumba L, Svergun DI, Tosner Z, Veverka V, Rezacova P: (2015) Molecular mechanism for the action of the anti-CD44 monoclonal antibody MEM-85. **J Struct Biol** 191, 214-223.

Tesina P, Cermakova K, Horejsi M, Prochazkova K, Fabry M, Sharma S, Christ F, Demeulemeester J, Debyser Z, Rijck JD, Veverka V, Rezacova P: (2015) Multiple cellular proteins interact with LEDGF/p75 through a conserved unstructured consensus motif. **Nat Commun 6**, 7968.

Pachl P, Simak O, Rezacova P, Fabry M, Budesinsky M, Rosenberg I, Brynda J: (2015) Structure-based design of a bisphosphonate 5 '(3 ') -deoxyribonucleotidase inhibitor. **Medchemcomm 6**, 1635-1638.


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