

**Szanowni Państwo,**

**serdecznie zapraszamy na seminarium  
“A NEW LIFE OF THE MICHAELIS-MENTEN EQUATION”,  
które przedstawi prof. Francesco Malatesta z Department of Biochemical Sciences,  
Sapienza University of Rome, Rome, Italy**

**Seminarium odbędzie się 19 KWIETNIA 2017 r., o godz. 11.30, w sali 1.05  
Miejsce: Budynek Wydziału Biotechnologii Uniwersytetu Wrocławskiego (KEBB)**

The determination of the steady-state parameters ( $K_M$  &  $k_{CAT}$ ) for enzymes which obey the Michaelis-Menten (MM) equation [1] relies on experimental determination of the initial rates of substrate consumption or product formation, provided the quasi-steady-state approximation is verified [2]. The relevance of this analysis resides in the time-independent hyperbolic relation of the initial velocity with initial substrate concentration. Alternatively, the steady-state parameters may be obtained by fitting the time-progress curves to the so-called time-integrated MM equation [3], in which the time-dependent substrate concentration can nevertheless not be explicitly solved, because of exponential and linear substrate terms present in the equation. In 1997 Schnell & Mendoza, however [4], developed a closed form solution for the total time evolution of substrate concentration which makes use of the Lambert w function. The Schnell-Mendoza equation, which is still largely unknown, allows direct fitting of the complete substrate or product time progress curves to determine the steady-state parameters, and is shown to be readily modified to account for reversibility and enzyme inhibition.

We will present experimental data on enzymes which catalyze irreversible and reversible reactions, discuss the results, and will show that the Schnell-Mendoza equation represents a new frontier in the study of steady-state enzyme kinetics.

References:

- [1] Michaelis & Menten (1913) Biochem. Z. 49: 333-369 and see Johnson & Goody (2011) Biochemistry 50: 8264–8269
- [2] Laidler (1955) Can. J. Chem. 33: 1614-1624
- [3] Leskovac (2003) in “Comprehensive enzyme kinetics”, Kluwer Academic Publishers
- [4] Schnell & Mendoza (1997) J. Theor. Biol. 187: 207-212