project, this review provides a summary of the pharmaceutical profiling methods available, with focus on in silico and in vitro models typically used to forecast active pharmaceutical ingredient's (APIs) in vivo performance after oral administration. An overview of the composition of human, animal and simulated gastrointestinal (GI) fluids is provided and state-of-the art methodologies to study API properties impacting on oral absorption are reviewed. Assays performed during early development, i.e. physicochemical characterization, dissolution profiles under physiological conditions, permeability assays and the impact of excipients on these properties are discussed in detail and future demands on pharmaceutical profiling are identified. It is expected that innovative computational and experimental methods that better describe molecular processes involved in vivo during dissolution and absorption of APIs will be developed in the OrBiTo. These methods will provide early insights into successful pathways (medicinal chemistry or formulation strategy) and are anticipated to increase the number of new APIs with good oral absorption being discovered.

Gajdziok, J. and B. Vranikova (2015). "Enhancing of drug bioavailability using liquisolid system formulation." *Ceska Slov Farm* 64(3):55–66.

One of the modern technologies of how to ensure sufficient bioavailability of drugs with limited water solubility is represented by the preparation of liquisolid systems. The functional principle of these formulations is the sorption of a drug in a liquid phase to a porous carrier (aluminometasilicates, microcrystalline cellulose, etc.). After addition of further excipients, in particular a coating material (colloidal silica), a powder is formed with the properties suitable for conversion to conventional solid unit dosage forms for oral administration (tablets, capsules). The drug is subsequently administered to the GIT already in a dissolved state, and moreover, the high surface area of the excipients and their surface hydrophilization by the solvent used, facilitates its contact with and release to the dissolution medium and GI fluids. This technology, due to its ease of preparation, represents an interesting alternative to the currently used methods of bioavailability improvement. The article follows up, by describing the specific aspects influencing the preparation of liquid systems, on the already published papers about the bioavailability of drugs and the possibilities of its technological improvement. Key words: liquisolid systems bioavailability porous carrier coating material preformulation studies.

Hofmann, M. and H. Gieseler (2018). "Predictive screening tools used in high-concentration protein formulation development." *J Pharm Sci* 107(3):772–777.

This review examines the use of predictive screening approaches in high-concentration protein formulation development. In addition to the normal challenges associated with protein formulation development, for high-concentration formulations, solubility, viscosity, and physical protein degradation play major roles. To overcome these challenges, multiple formulation conditions need to be evaluated such that it is desirable to have predictive but also low-volume and high-throughput methods in order to identify optimal formulation conditions very early in development without time- and material-consuming setups. Many screening techniques have been reported for use in high-concentration formulation development, but not all fulfill the requirements mentioned previously. This review summarizes the advantages and disadvantages of different screening approaches currently used in formulation development and the correlation of predictive data to protein solubility, viscosity, and stability at high protein concentrations.