were determined. Comparative evaluation of the oral absorption and skin deposition of DIM-D-loaded various lipid-based formulations was performed in rats. DIM-D showed pH-dependent solubility and a high log P value. It was not a strong substrate of microsomal degradation and P-glycoprotein. SMEDDs comprised of medium chain triglycerides, monoglycerides, and kolliphor-HS15 (36.70 ± 0.42 nm). SNEDDs comprised of long chain triglycerides, cremophor RH40, labrasol, and TPGS (84.00 ± 14.14 nm). Nanostructured lipid carriers (NLC) consisted of compritol, miglyol, and surfactants (116.50 ± 2.12 nm). The blank formulations all showed >70% cell viability in caco-2 cells. Differential Scanning Calorimetry confirmed the amorphization of DIM-D within the lipid matrices while Atomic Force Microscopy showed particle size distribution similar to the dynamic light scattering data. DIM-D also showed reduced permeation across caco-2 monolayer that was enhanced ($p < 0.05$) by SNEDDs in comparison to SMEDDs and NLC. Fabsolute for DIM-D SNEDDs, SMEDDs, and NLC was 0.14, 0.04, and 0.007, respectively. SNEDDs caused 53.90, 11.32, and 15.08-fold more skin deposition of DIM-D than the free drug, SMEDDs, and NLC, respectively, at 2 hours following oral administration and shows a viable potential for use in skin cancer chemoprevention. Graphical Abstract.

Bredael, G. M. et al. (2014). "In vitro-in vivo correlation strategy applied to an immediate-release solid oral dosage form with a biopharmaceutical classification system IV compound case study." *J Pharm Sci* 103(7):2125–2130.

The ability to predict in vivo response of an oral dosage form based on an in vitro technique has been a sought-after goal of the pharmaceutical scientist. Dissolution testing that demonstrates discrimination to various critical formulations or process attributes provides a sensitive quality check that may be representative or may be overpredictive of potential in vivo changes. Dissolution methodology with an established in vitro-in vivo relationship or correlation may provide the desired in vivo predictability. To establish this in vitro-in vivo link, a clinical study must be performed. In this article, recommendations are given in the selection of batches for the clinical study followed by potential outcome scenarios. The investigation of a Level C in vitro-in vivo correlation (IVIVC), which is the most common correlation for immediate-release oral dosage forms, is presented. Lastly, an IVIVC case study involving a biopharmaceutical classification system class IV compound is presented encompassing this strategy and techniques.

Budai-Szu Cs, M. et al. (2016). "In vitro testing of thiolated poly(aspartic acid) from ophthalmic formulation aspects." *Drug Dev Ind Pharm* 42(8):1241–1246.

Ocular drug delivery formulations must meet anatomical, biopharmaceutical, patient-driven and regulatory requirements. Mucoadhesive polymers can serve as a better alternative to currently available ophthalmic formulations by providing improved bioavailability. If all requirements are addressed, a polymeric formulation resembling the tear film of the eye might be the best solution. The optimum formulation must not have high osmotic activity, should provide appropriate surface tension, pH and refractive index, must be non-toxic and should be transparent and mucoadhesive. We would like to highlight the importance of in vitro polymer testing from a pharmaceutical aspect. We, therefore, carried out physical-chemical investigations to verify the suitability of certain systems for ophthalmic formulations. In this work, in situ gelling, mucoadhesive thiolated poly(aspartic acid)s were tested from ophthalmic