composition for testing in mice. Optimized formulations showed promising in vitro release profiles, in which 20%–45% of PF was released in the first 7 hours and 70%–90% released within 48 hours. The rheological properties of the ointment remained stable throughout storage at 25°C ± 2°C/60% RH. Animal studies showed treatments of burn wounds during the inflammatory stage of wound healing with PF ointments at different drug concentrations had no adverse effects on reepithelization. Moreover, 6.5% PF ointment (F3) reduced the expression of pro-inflammatory cytokines IL-12p70 and TNFalpha. This study suggests that hydrocarbon base ointment could be a promising dosage form for topical delivery of PF in treatment of deep partial-thickness burns.

Fan, Y. et al. (2015). "Preformulation characterization and in vivo absorption in beagle dogs of JFD, a novel anti-obesity drug for oral delivery." *Drug Dev Ind Pharm* 41(5):801–811.

JFD (*N*-isoleucyl-4-methyl-1,1-cyclopropyl-1-(4-chlorine)phenyl-2-amylamine. HCl) is a novel investigational anti-obesity drug without obvious cardiotoxicity. The objective of this study was to characterize the key physicochemical properties of JFD, including solution-state characterization (ionization constant, partition coefficient, aqueous and pH-solubility profile), solid-state characterization (particle size, thermal analysis, crystallinity and hygroscopicity) and drug-excipient chemical compatibility. A supporting in vivo absorption study was also carried out in beagle dogs. JFD bulk powders are prismatic crystals with a low degree of crystallinity, particle sizes of which are within 2–10 μm. JFD is highly hygroscopic, easily deliquesces to an amorphous glass solid and changes subsequently to another crystal form under an elevated moisture/temperature condition. Similar physical instability was also observed in real-time CheqSol solubility assay. pK(a) (7.49 ± 0.01), log P (5.10 ± 0.02) and intrinsic solubility (S0) (1.75 μg/mL) at 37°C of JFD were obtained using potentiometric titration method. Based on these solution-state properties, JFD was estimated to be classified as BCS II, thus its dissolution rate may be an absorption-limiting step. Moreover, JFD was more chemically compatible with dibasic calcium phosphate, mannitol, hypromellose and colloidal silicon dioxide than with lactose and magnesium stearate. Further, JFD exhibited an acceptable pharmacokinetic profiling in beagle dogs and the pharmacokinetic parameters T(max), C(max), AUC(0-t) and absolute bioavailability were 1.60 ± 0.81 hours, 0.78 ± 0.47 μg/mL, 3.77 ± 1.85 μg.h/mL and 52.30% ± 19.39%, respectively. The preformulation characterization provides valuable information for further development of oral administration of JFD.

Fujimori, M. et al. (2016). "Low hygroscopic spray-dried powders with trans-glycosylated food additives enhance the solubility and oral bioavailability of ipriflavone." *Food Chem* 190:1050–1055.

The improvement in the solubility and dissolution rate may promote a superior absorption property towards the human body. The spray-dried powders (SDPs) of ipriflavone, which was used as a model hydrophobic flavone, with trans-glycosylated rutin (Rutin-G) showed the highest solubilizing effect of ipriflavone among three types of trans-glycosylated food additives. The SDPs of ipriflavone with Rutin-G have both a significant higher dissolution rate and solubility enhancement of ipriflavone. This spray-dried formulation of ipriflavone with Rutin-G exhibited a low hygroscopicity as a critical factor in product preservation. In addition, an improvement in the oral absorption of ipriflavone was achieved by means of preparing composite particles of