

## Sub-programme: Drug Delivery Researchers

Researcher	Research activities	e-mail
Prof Minja Gerber	Transdermal and/or topical drug delivery of active pharmaceutical ingredients by means of colloidal suspensions, nano-emulsions and nano-emulgels together with dermal toxicity testing.	<a href="mailto:Minja.Gerber@nwu.ac.za">Minja.Gerber@nwu.ac.za</a>
Prof Chrisna Gouws	My research focus is developing advanced cell culture based models for pharmaceutical applications, specifically the screening of traditional plant medicines for anticancer potential.	<a href="mailto:Chrisna.Gouws@nwu.ac.za">Chrisna.Gouws@nwu.ac.za</a>
Prof Sias Hamman	My research projects involve investigations of drug absorption enhancement, herb-drug interactions and functional excipients by means of <i>in vitro</i> and <i>ex vivo</i> pharmacokinetic models. These studies include oral drug delivery, intranasal drug delivery as well as direct nose-to-brain drug delivery.	<a href="mailto:Sias.Hamman@nwu.ac.za">Sias.Hamman@nwu.ac.za</a>
Prof Wilna Liebenberg	I am an expert in pharmaceutical solid-state chemistry, and particularly the control of solubility and stability. My research focuses on pharmaceutical solid-state chemistry, polymorphism, amorphism and poorly soluble drugs.	<a href="mailto:Wilna.Liebenberg@nwu.ac.za">Wilna.Liebenberg@nwu.ac.za</a>
Prof Jan Steenekamp	Research primarily focusses on the formulation of solid oral dosage forms with an emphasis on multiple-unit pellet system (MUPS) tablets and the application of the SeDeM Expert Diagram System (SeDeM EDS) as a quality by design tool to optimise the formulation of MUPS tablets. An additional research interest is the application of functional excipients as a formulation approach for improved drug delivery.	<a href="mailto:Jan.Steenekamp@nwu.ac.za">Jan.Steenekamp@nwu.ac.za</a>
Prof Anita Wessels	The development and validation of analytical techniques, especially high performance liquid chromatography (HPLC) for the analysis of pharmaceutical raw materials, modified molecules and final products during the processes of synthesis, formulation and final products. Additionally, establishing the solubility of raw materials and improving it.	<a href="mailto:Anita.wessels@nwu.ac.za">Anita.wessels@nwu.ac.za</a>
Prof Dewald Steyn	My research is mainly focused on pharmacokinetic studies. My current research projects include potential drug absorption enhancement with the aid of bioenhancers and/or innovative formulation approaches and also the investigation of herb-drug interactions which entails the use of <i>in vitro</i> and <i>ex vivo</i> pharmacokinetic models. The pharmacokinetic models are representative of various drug delivery routes such as oral drug delivery, intranasal drug delivery, as well as direct nose-to-brain drug delivery.	<a href="mailto:Dewald.Steyn@nwu.ac.za">Dewald.Steyn@nwu.ac.za</a>

Prof Lissinda du Plessis	Efficacy and toxicity studies of active pharmaceutical ingredients and drug delivery systems with a specific focus on melanoma and malaria. In addition we are developing novel 3D bioprinted tissues to use as models in pharmacodynamics studies.	<a href="mailto:Lissinda.DuPlessis@nwu.ac.za">Lissinda.DuPlessis@nwu.ac.za</a>
Dr Liezl Badenhorst	Enhancement of drug solubility and the influence of buffer composition on BCS classification of drugs, as well as drug-drug compatibility studies with regard to influence on solubility profiles of various drugs when administered in combination.	<a href="mailto:Liezl.Badenhorst@nwu.ac.za">Liezl.Badenhorst@nwu.ac.za</a>
Prof Joe Viljoen	Development and formulation of drug delivery systems that are able to enhance the delivery of lipophilic drugs via different routes of administration (oral, topical, transdermal) utilising different techniques.	<a href="mailto:Joe.Viljoen@nwu.ac.za">Joe.Viljoen@nwu.ac.za</a>
Prof Marius Brits	Pharmaceutical solid-state chemistry with a focus on the polymorphic-, pseudo-polymorphic and amorphous behaviour of active pharmaceutical ingredients (APIs) to create, identify and qualify (by means of solid-state kinetics, thermodynamics, dissolution and solubility studies) novel solid-state forms to be considered by the pharmaceutical industry during pre-formulation studies. I also focus on the quality assurance (QA) and quality control (QC) of APIs and final pharmaceutical products (FPPs) through: quality assurance guideline development; monograph development and the development of innovative screening technologies (ISTs) for the identification of substandard/falsified medicines.	<a href="mailto:Marius.Brits@nwu.ac.za">Marius.Brits@nwu.ac.za</a>
Dr Hannlie Hamman	Application of the SeDeM Expert Diagram System (SeDeM EDS) as a formulation tool for solid oral dosage form development such as multiple-unit pellet system (MUPS) tablets. Comparison of excipients, mixtures of excipients and co-processed excipients with one another regarding their compressibility, compaction and physical properties such as elasticity and plasticity.	<a href="mailto:Hannlie.Hamman@nwu.ac.za">Hannlie.Hamman@nwu.ac.za</a>
Dr Righard Lemmer	My research focusses on pharmaceutical solid-state chemistry and computational pharmaceutics, with the goal of enhancing the solubility and stability of drugs. To this end I employ techniques ranging from polymorphism screening to the preparation of co-crystals, amorphous solids and amorphous solid dispersions. These techniques are supported by novel mathematical models, statistical analyses, and computer programming.	<a href="mailto:Righard.Lemmer@nwu.ac.za">Righard.Lemmer@nwu.ac.za</a>
Dr Anja Haasbroek-Pheiffer	My research focuses on drug absorption, specifically the absorption of medicinal plants through intranasal, direct nose-to-brain, and intestinal drug delivery by means of <i>ex vivo</i> studies. Furthermore, I investigate the mechanisms of action of these medicinal plants and their active isolates by means of fluorescent and confocal microscopy.	<a href="mailto:Anja.HaasbroekPheiffer@nwu.ac.za">Anja.HaasbroekPheiffer@nwu.ac.za</a>