



**London
South Bank
University**

School of Engineering PhD Project – 2018

PhD Title:

Development and characterisation of an ostomy flange adhesive that provides optimal security and maintains skin barrier function.

Industrial Sponsor and Collaborator:

This PhD studentship is jointly funded by London South Bank University and Welland Medical Ltd., UK. The studentship covers the full PhD study tuition fee (£9.5k per year) and living stipend (£15k per year) for three years. Welland Medical Ltd. is a British manufacturing company established in 1988 and one of the leading ostomy brands worldwide. Welland specialises in the design, development and manufacture of stoma care appliances and accessories, working closely with healthcare professionals, patients and care organisations, to bring to market innovative products that enhance the lives of ostomates.

Background:

Following either trauma or disease, a temporary or permanent stoma sometimes has to be surgically created, which serves to divert the passage of waste from the bowel or ureter into a collection device – an ostomy bag. There are circa 130,000 patients with a stoma in the UK alone and there are three broad categories of ostomy bags: colostomy, ileostomy and urostomy, each collecting waste from the colon, ileum and ureter respectively. An integral part of the ostomy bag device is the skin adhesive – referred to as the flange – which attaches the bag to the abdominal skin. There are many demanding and in some cases paradoxical requisites of this flange, including high levels of adhesion to provide security and easy atraumatic removal, high integrity yet thin form to allow conformability with high absorptive and breathability capacity and chemical composition posing minimal skin damage or irritation. While there are many flange compositions, predominantly comprising hydrocolloid, there remains strong scope in the development of optimal flange properties to meet the demands of a wide range of ostomy product users. This is a unique opportunity for a PhD candidate to work on a research project that is very application driven, with strong potential for the work to be implemented as part of a product within the project time-frame in collaboration with an industrial sponsor.

Project scope and objectives:

This project will involve a strong initial critical literature review on the effect of skin adhesives on skin barrier function, in particular with prolonged use and repeated application and removal with translational interpretation for applications within ostomy. The research is then expected to span from evaluation of existing hydrocolloid-based skin adhesive materials within ostomy on skin barrier properties to research exploring physical and chemical surface modifications to improve security or tack of existing hydrocolloid formulations. It is envisaged that as part of this project novel material combinations and material forms will be investigated for use as ostomy skin adhesives as well as new and key characterisation tools for evaluating skin barrier measurements.

Candidate background:

We are seeking a highly motivated, proactive individual with a strong scientific approach to investigation with a background (degree or Masters) in either one of the following: materials science, biomedical sciences, biomedical materials science, bioengineering, biochemistry, physics, chemistry or similar degree.

Application Procedure

Informal enquiries can be made to Arash Moavenian ArashMoavenian@wellandmedical.com and Perry Xiao (the PhD Supervisor) XIAOP@lsbu.ac.uk

Interested applicants should apply via UCAS using this link:

<https://www.ucas.com/postgraduate/how-to-apply> quoting reference PGR007_Eng_WM

Deadline: 5 October 2018

A short list of candidates will be invited for interview and the successful candidate will be selected for an award in accordance with the University's postgraduate admission requirements.