

## Project proposal template

### Graduate School studentships

### March 2015

<i>Project title</i>	Micro and macroscopic characterisation of co-processed spray-dried polymers: a new paradigm in manufacturing orally disintegrating tablets.
<i>First Supervisor</i>	Dr <input type="text" value="Amr ElShaer"/>
<i>Second Supervisor</i>	Dr John Fletcher
<i>School</i>	Pharmacy and Chemistry <input type="text"/>
<i>Other member of supervisory team (no more than three KU supervisors in total)</i>	Dr Waseem Kaialy
<i>Specific requirements beyond 2:1 degree</i>	Degree in Pharmaceutical sciences, Material Sciences, Physical Chemistry or other Science related degrees

**Project summary**  
**(max 4,000 characters)**

Orally disintegrating tablets (ODTs) are solid dosage forms that disintegrate within 3 minutes in the mouth into a paste that can be easily swallowed. Work on improving ODT formulations have continued over the past decade in an attempt to produce a safe and efficient substitute to conventional oral dosage forms particularly for (typically elderly) patients with dysphagia (difficulty swallowing). The market for ODTs has expanded rapidly over the last 20 to 30 years to reach \$3 billion in 2006, whilst sustaining 20% annual growth<sup>1</sup>. However, these products tend to result in dosage forms that produce near instantaneous dissolution and subsequent absorption. This is problematic as the resultant plasma profiles mean there is a greater incidence of side effects and in increased frequency of dosing that can lead to issues of compliance. The proposed study will look at using polymers that display pH responsive release to manufacturing a new generation of ODTs that will sustain the drug release across the GIT. The water insoluble polymer will be spray-dried together with water soluble polymers such as poly ethylene glycol (PEG), polyvinyl alcohol (PVA) and cellulose derivatives to manufacture microparticulate system that can sustain the drug release across the matrix of ODTs. The *in vitro* properties of the microparticles will be studied using scanning electron microscopy, differential scanning calorimetry, Thermogravical analysis, X-ray diffraction, infrared and near infrared spectroscopy.

<sup>1</sup>Arwa Matoug Elwerfalli, Zabir Ghanchi, Fatema Rashid, Raid Alany, Amr ElShaer., (2015) New generation of orally disintegrating tablets for sustained drug release: A propitious outlook. *Current Drug Delivery*. Accepted.

