**Name of Supervisor (Title)**
Horacio CABRAL (Associate Professor)

**Name of Graduate School / Faculty/ Institute**
Graduate School of Engineering

**Research Topic & Research Description**
Development of targeted polymeric nanomedicines against breast cancer

Breast cancer is the predominant cancer in women accounting for 25% of the new cases and 15% of the deaths. Breast tumors are treated with various therapeutic strategies. However, despite showing good initial therapeutic responses, breast cancer patients present high relapse rate, which has been associated with the presence of a subpopulation of cancer cells, so called cancer stem-like cells (CSCs), showing self-renewal ability, high proliferation rate and capacity to produce heterogeneous cancer cells. CSCs are also resistant to conventional therapies due to enhanced detoxification mechanisms. Therefore, novel therapeutic approaches capable of eradicating both breast cancer cells and CSCs are needed to avoid recurrence and increase patient survival. Herein, we will develop polymeric nanomedicines targeting breast CSCs toward enhanced antitumor efficacy.

**Special Academic Conditions Required for Research**

1) **Prerequisite knowledge and/or specific skill and its proficiency**
Polymer synthesis, or cell biology, or cancer biology

2) **Required study field(s)**
Polymer Science/Biology/Biochemistry/Medicine

3) **Academic background or research project experience to be considered at selection**
Materials engineering/Polymer Science/Biology/Biochemistry/Medicine

**URL**
http://www.bmc.t.u-tokyo.ac.jp/index-e.html

**Lab Location**
Hongo Campus

**Academic Research Areas**
Bioengineering
Biotechnology
Chemical and Biomolecular Engineering