I. Facilities, Equipment, and Other Resources

FACILITIES

Laboratory: The Joshi group itself consists of 1200 sq. ft. of wet lab space within the Wyss facility in Longwood. Contained in this space are two fume hoods suitable for chemical synthesis equipped with vacuum manifolds, pumps, and inert gas inlets. The group also has all standard lab equipment, including analytical balances, refrigerators, freezers, rotary evaporator, shakers, centrifuges, pH meter, lyophilizer, incubators, and cabinets for the safe storage of chemicals. Group-owned equipment also includes an automated peptide synthesizer (Advanced Chemtech, Apex 360) and analytical HPLC (Agilent 1200 series, equipped with autosampler and diode array detector).

Clinical: N/A

Animal: N/A

Computer: All members of the Joshi group are equipped with desktop and laptop Mac and PC computers. Service and desktop user support services, core IT services (such as storage, data backup and security) and computer services (such as high-performance computing and applications, website and infrastructure servers) are administered by the Harvard Medical School.

Office: Dedicated office space is available for the PI, both in the Longwood Medical Area and at the Cambridge campus for SEAS. Office space for postdocs, graduate students, and undergraduates is provided in the wet chemical laboratory spaces. The Wyss Institute also maintains common areas for student congregation.

Other:

MAJOR EQUIPMENT

Wyss Institute: The Joshi Group laboratory is housed entirely by the Wyss Institute, and as a core Institute faculty member, the PI and group members have full access to all Wyss instrumentation. Relevant Wyss Institute equipment includes a preparatory HPLC (Agilent 1200 Prep, equipped with diode array detector and fraction collector) and LC-MS (Agilent 6140 with Infinity 1290 LC), which will be used for peptide/small molecule purification and characterization. The TA AR G2 rheometer will be used to assess the mechanical properties of peptide-based matierals. A Malvern Zetasizer will be used to obtain data regarding the size and surface potential of soluble nanostructures. An in-house TEM instrument (JOEL JEM-1400) will be used to visualize peptide assemblies, where applicable. The Wyss Institute is also in the process of acquiring two state-of-the-art, high-resolution AFM instruments (Veeco III and VIII), ideal for characterization of peptide nanotubes. Other relevant Wyss Institute equipment includes UV-vis and fluorescence spectrophotometers, quartz crystal microbalance, plate reader, and an automated fluid handler for high-throughput screening with 96-well plates.

Harvard Medical School (HMS): The Joshi laboratory is located across the street from HMS, and group members have access to the Harvard Medical School open-access NMR facility, which contains two Varian instruments (400 MHz and 600 MHz).

Harvard Center for Nanoscale Systems (CNS): A significant portion of the electron microscopy necessary for the characterization of the peptide nanotubes may take place at CNS, which houses 4 SEM and 5 TEM instruments. Joshi group members will be able to access these instruments with proper training. CNS also houses many other equipment for the characterization of nanostructures, including and XPS instrument and micropatterning facility.

Dana Farber Molecular Biology Core Facility (MBCF): MBCF, which is also located in the Longwood Medical Area, a 5 minute walk from the Joshi lab, provides Joshi group members with access to MALDI and LC-MS-MS instruments along with expert mass spectrometry consultation.