Circulating Tumor Cell Research Core

**Purpose:** Circulating tumor cells (CTCs) are cancer cells shed by solid tumors into the bloodstream. CTCs have recently emerged as valuable prognostic and predictive cancer biomarkers, providing a non-invasive window into disease biology and progression that can be sampled repeatedly over time from a simple blood draw. Moreover, CTC sampling enables real-time tracking of cancer plasticity as tumor cells evolve over time and through progressive lines of therapy, thus elucidating mechanisms of cancer dissemination and identifying new therapeutic targets. Thus, CTC characterization holds the promise of enabling real-time molecular phenotyping of individual cancer patients’ tumors at diagnosis and throughout treatment, advancing precision medicine in this important and vast patient group. The USC Norris CTC Research Core is a state-of-the-art, multi-platform facility for the capture and analysis of peripheral blood CTCs. The Core employs a variety of technologies that enrich CTCs for enumeration or molecular characterization. Enrichment is done from blood samples drawn by standard venous puncture from patients. In addition, Dr. Goldkorn’s team has developed mouse xenograft research models using labeled CTCs that can be recovered from the mice.

**Facilities:** The Core is located in the laboratory of Dr. Amir Goldkorn (Faculty Director) on the 6th floor of the Harlyne Norris Research Tower (HNRT 6516) in the USC Norris Comprehensive Cancer Center. For CTC capture, the laboratory has: 1. a Cellsearch system (Janssen/J&J); 2. A LiquidBiopsy platform (Cynvenio); 3. a ClearCell platform (Clearbridge); and 4. two Parylene-C microfiltration platforms (developed by Dr. Goldkorn’s team in collaboration with Caltech). Additional platforms currently are being obtained through new collaborative agreements.

**Access and Pricing:** The facilities are available to all USC investigators, as well as collaborators outside the university. The price for CTC enrichment using any of the available platforms is $500 per sample. Invoicing is set up through the online CORES system. Dr. Goldkorn and his staff assist investigators in choosing the most appropriate platform for their experimental/clinical trial needs. Additional downstream molecular profiling can be discussed as well.

**Hours of operation:** Our CTC capture and analysis operations have been conducted within the laboratory’s regular operating schedule, adhering for the most part to normal business hours.

**Staffing:** Currently Dr. Goldkorn directs the CTC activities, and operation of equipment and processing of samples is performed by trained technical staff in his laboratory.

**Contact:** Please email Dr. Goldkorn at agoldkor@med.usc.edu with inquiries.