

MICHIGAN

HIGH THROUGHPUT SCREENING CENTER

The Michigan High Throughput Screening Center (MHTSC) is a non-profit, contract research organization providing services in assay development and optimization and high throughput screening. Intellectual property rights to the compounds identified in screening will be retained by the client. The MHTSC is staffed by pharmaceutical industry scientists with over 50 years experience in drug discovery and high throughput screening. MHTSC staff has experience in implementing assays for a broad range of targets in central nervous system diseases, inflammation, infectious diseases and oncology.

MHTSC

SERVICES

High throughput screening is available to academic and corporate research laboratories. The MHTSC staff will work with clients to implement HTS assays. Modifications often required include optimizing buffer choice and concentration, target protein and substrate or ligand concentrations, tolerance to DMSO, temperature, pH, and/or ionic strength, divalent cation concentrations and incubation times of the reaction. Additional factors that usually need to be addressed before beginning HTS include: assessment

and enhancement of target molecule and substrate or ligand stability under screening conditions; and optimization of signal above background. Modifications to an assay can be made to accommodate absorbance, radio-isotopic, fluorometric, luminescent, or other means of detection.

We offer screening to clients at different levels or stages. In addition to full screens from our library of 100,000 compounds, a smaller scale screen may be conducted with a subset of our compound library (~10,000 compounds). The compounds selected for this purpose will include a diverse and representative set of the larger compound collection. After the initial assay (conducted at a single concentration), active compounds are retested to verify activity. Verified active compounds are evaluated in a dose response assay to help prioritize the active compounds. Evaluation of each compound's activity in a dose response allows discrimination of potency and mechanism and assists in structure-activity relationships.



*The TekCel
TubeStore system*

MICHIGAN HIGH THROUGHPUT SCREENING CENTER

EQUIPMENT

The MHTSC uses a TubeStore system from TekCel, Inc. (Hopkinton, MA) for storage and retrieval of compounds. The system includes storage for up to 200,000 tubes and has integrated temperature control in an inert (nitrogen) atmosphere. The TubeStore modules can be integrated with each other and with third-party instruments for compound retrieval and pipetting. An essential feature of the system is an integrated onboard database for inventory and content tracking. An additional feature is the ability to store (daughter) plates along with the tubes in the TubeStore module. This will enhance our long-term storage capabilities and maintain the integrity of our compound library.

Two liquid handling robots (Tecan, Freedom EVO) are used for plate preparation and assays with plate readers that can detect absorbance, fluorescence polarization, time resolved fluorescence, luminescence, and radioactivity.

A VIPR II (Aurora Discovery, Inc.) voltage/ion probe reader multi-channel fluorescence plate reader is available for ion channels screens. The reader simultaneously measures

fluorescence emission at two wavelengths from 8 wells of a 96 or 384 well plate. The VIPR II is an important tool for ion channel research and drug discovery.

ACCESS

The MHTSC conducts screening on a fee-for-service basis. The client supplies necessary reagents (target protein, i.e., receptor or enzyme; and ligand or substrate) and the assay protocol. The MHTSC will optimize the assay for screening, conduct the assay and analyze the data. The MHTSC will provide a report containing the identities of active compounds.

In some cases, clients may provide personnel from their laboratories to facilitate assay optimization and/or screening.

CONTACT INFORMATION

HUB

■ **Robert Kilkuskie, Ph.D.**

Senior Director
rkilkuskie@kvcc.edu
Kalamazoo Valley Community College
7107 Elm Valley Drive
Kalamazoo, MI 49009
(269) 353-1582
(269) 353-1299 (fax)
<http://mhtsc.kvcc.edu/>



Members of the MHTSC staff (left to right): Daryl Chapman, Steve Vroegop and Rob Kilkuskie



Steve Vroegop retrieves compounds from the TubeStore.