

## Staff



**Nemours HTS Lab Head Dr. Andrew Napper** brings over 25 years of drug discovery experience to Nemours. Before establishing the HTS and Drug Discovery Laboratory at the Nemours Center for Childhood Cancer Research (NCCCR) in 2009, he was Director of High-Throughput Screening for the Penn Center for Molecular Discovery at the University of Pennsylvania, (one of the original 10 centers established as part of the NIH Roadmap initiative to discover drugs for neglected diseases). Current group members reporting to Dr. Napper consist of an HTS Scientist/Lab Manager with more than 20 years of experience in pharmaceutical and academic drug discovery, a Postdoctoral Fellow, Research Associate, and recent faculty appointee. In the summer months undergraduate scholars join the group.

## Contact Information:



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**Bear Necessities**  
PEDIATRIC CANCER FOUNDATION  
[bearnecessities.org](http://bearnecessities.org)



Hyundai Hope On Wheels™  
Helping kids fight cancer



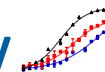
**Delaware INBRE**  
Delaware's Biomedical Research Catalyst



## High-Throughput

## Screening &

## Drug Discovery



**Nemours High-Throughput Screening (HTS) & Drug Discovery** is dedicated exclusively to technology development and drug discovery for rare childhood diseases underserved by current pharmaceutical development efforts. We collaborate with researchers in pediatric disease areas in discovering novel chemical probes useful to further biological understanding of the disease, and to provide lead compounds for pre-clinical and clinical development.

## Facilities



Newly opened in April 2011, **Nemours HTS & Drug Discovery Lab** comprises 2,200 sq. ft. of space purpose-built for assay development, high-throughput screening, and hit-to-lead drug discovery. Facilities and resources include liquid handling workstations, reagent dispensers, and plate readers equipped with stackers and barcode readers. A fully equipped tissue culture and sterile screening lab adjoins the main HTS lab, as well as cryostorage of cell lines and a freezer bay for compound and reagent storage.

## Capabilities & Services

- **Target selection**
- **Assay design & validation**  
384-well HTS compatible
- **Pilot screening & target profiling**  
Against pharmacologically active, well characterized compounds representing most target classes
- **HTS & follow-up**  
Dose-response & selectivity testing of hits from 200,000 compound library
- **Data analysis**
- **Grant writing**

## Collaborative Projects

**Collaborations are sought** with researchers who have expertise in disease biology to develop assays for HTS and hit characterization and to screen compound libraries. Seed funding is used to generate preliminary data to support multi-PI grant applications focused on HTS and chemical probe discovery, for example PAR-12-058, Solicitation of Assays for High-Throughput Screening to Discover Chemical Probes (R01).

As a DE-INBRE affiliated core in the COBRE-funded Nemours Center for Pediatric Research, the HTS & Drug Discovery Lab collaborates with COBRE and INBRE-funded investigators on target acquisition, assay development, and pilot HTS. Our collaborators are eligible to apply for Center Core Access Awards supported by DE-INBRE grant P20MG103446.

## Expertise

### Biochemical and cell-based assays

- enzyme activity & kinetics
- receptor ligand binding
- protein-protein interactions
- protein-DNA interactions
- reporter gene expression
- cell viability and cytotoxicity
- phenotypic screening

### Detection technologies

- absorbance
- fluorescence
- luminescence
- fluorescence polarization
- time-resolved fluorescence, TR-FRET
- AlphaScreen

## Drug Discovery Technology



### Liquid handling robotics

*Rapid & precise transfer of as little as 50 nl*

BioTek reagent dispenser  
*Low volume dispensing*



Janus robotics  
*384-well pintool (50 nl)*  
*384-well head for tips (0.5 – 30 µl)*  
*Variable position pipetting arm*

Cherrypicking



Pintool transfer



Tip transfer

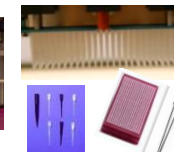


Plate stackers & sealers  
*Automated plate handling*

**Nemours compound libraries**  
*Over 200,000 compounds to date*



MicroSource Spectrum – 2,000 drugs & natural products  
TimTec NPL & ND1 – 3,600 natural products & derivatives  
Lankanau Chemical Genomics – 96,000 small molecules  
ChemBridge MicroFormat – 100,000 small molecules

### Low volume, high density screening

384-well microplates

Orthogonal pooling

Versatile signal detection

*Perkin Elmer Envision™ plate reader*

Advanced data handling

*Oracle™ database*

*Curve fitting and analysis software*

