



HS/HSL

innovation space

Newsletter

The graphic features a background of interlocking gears. Each gear contains a different icon or word related to innovation: 'collaborate' (with a lightbulb), 'create' (with binary code), 'make' (with a wrench), 'invent' (with a Vitruvian man), 'design' (with a gear), and others like 'connect' (with a network diagram) and 'brain' (with a brain icon). The text 'HS/HSL' is in red at the top left, 'innovation space' is in large red letters in the center, and 'Newsletter' is in red at the bottom right. A red and grey wavy bar is at the bottom.

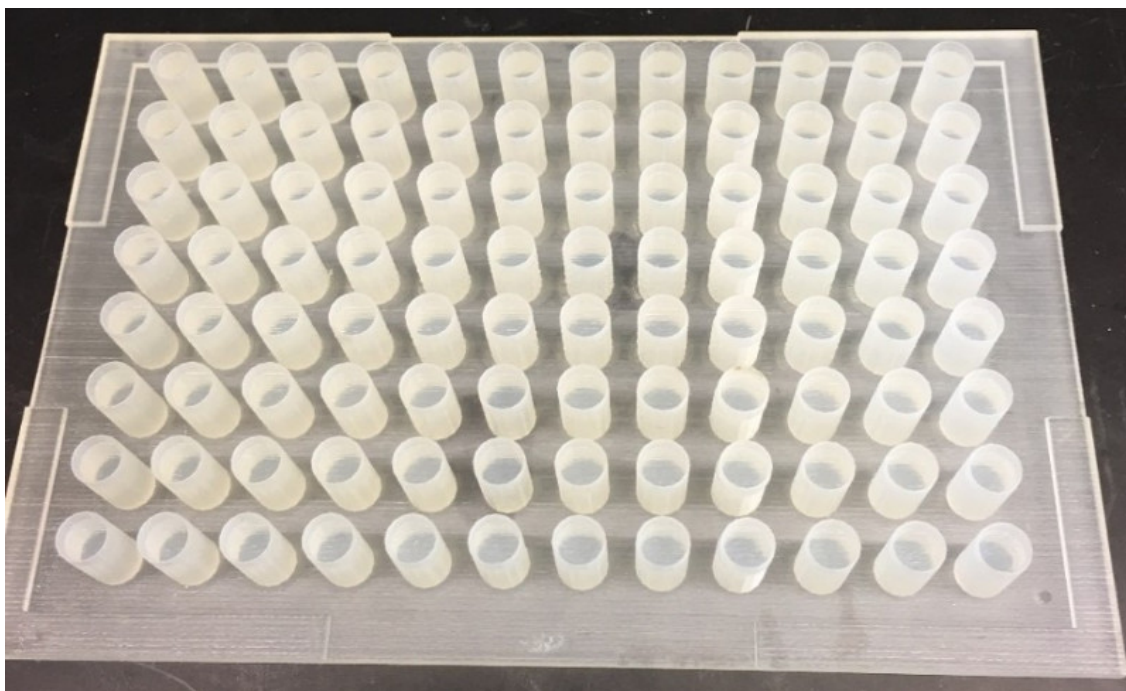
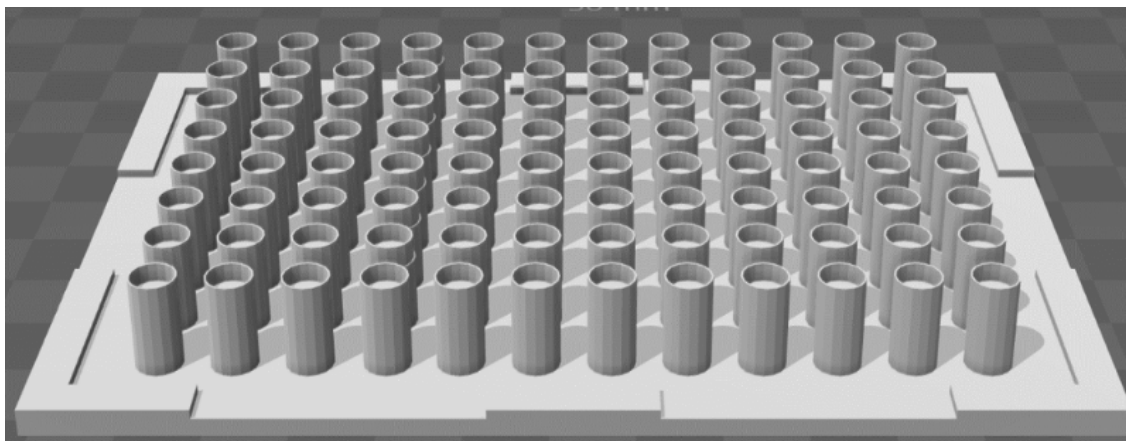
Maker:	Bryan Mackowiak
Affiliation:	Department of Pharmaceutical Sciences, University of Maryland, Baltimore School of Pharmacy
Project:	Design and 3D print a custom 96-well plate
Used:	Tinkercad , Afinia H480

The Wang lab submitted Mackowiak's well plate design to [Transform Tox Testing Challenge: Innovating for Metabolism](#), a tiered competition for \$1 million, launched by the [EPA](#), the NIH's [National Center for Advancing Translational Sciences](#) (NCATS), and the [National Toxicology Program](#). The challenge posed to scientists is to find new ways to incorporate physiological levels of chemical metabolism into high-throughput screening (HTS) assays. The lab learned earlier this year that their

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Mackowiak's well plate design is innovative for multiple reasons, including:

- it uses a co-culture system that allows scientists to add metabolism to toxicity assays to examine whether physiological relevant metabolites have any inherent toxicity
- it can be retro fitted with existing high-throughput screening systems, making it cheap and easy to implement



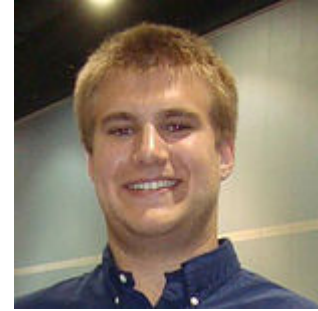
Mackowiak's initial 96-well plate design rendered in Tinkercad above. Below, his final design 3D printed by [Potomac Photonics](#).

Mackowiak modeled his design using Tinkercad, a free online CAD program, and 3D printed the first few prototypes at the HS/HSL Innovation Space. These prints helped

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concept well plate that was used for actual data collection.

Bryan recently spoke about his entrepreneurial work at the Entrepreneurship and Innovation Expo, an event organized by the student-run [Entrepreneurship and Innovation Network](#), to highlight our campus's entrepreneurial progress and achievements. HS/HSL Innovation Space staff were also part of the Expo. Stay tuned to the [Tox Testing Challenge website](#) to follow the lab's competition status.



Bryan Mackowiak, 3rd year
Pharmacy Student

Emerging Tech in the News and Literature

1. [Augmenting Reality in the Operating Room](#) (umaryland.edu)
2. [University of Maryland will be a Research Center for 3D Bioprinting](#) (technical.ly)
3. [Three Dimensional Surgical Modeling with an Open-Source Software Protocol](#) (nih.gov)

Did You Know?

You can now visualize and explore human anatomy and DICOM (Digital Imaging and Communications in Medicine) files in 3D using our [zSpace VR \(virtual reality\) station and software](#). The zSpace VR station is located at the HS/HSL Innovation Space and available for use on a first-come first-served basis.

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Upcoming HS/HSL Innovation Space Workshops

Introduction to 3D Printing

- May 8, 2017

Introduction to 3D Modeling

- May 11, 2017

From CT to .STL: Create a Printable 3D Model from CT Scan Data

- May 16, 2017

[Register for our free workshops](#)

New to the HS/HSL Innovation Space?

The Innovation Space is designed for innovative and collaborative hands-on learning experiences. It offers three [3D printers](#), two [3D scanners](#), a [Mac Pro](#) with specialized multimedia software, a plotter for [poster printing](#), a [zSpace](#) virtual reality station, [Google Cardboard](#) viewers, a large DNA model, two molecule kits, a button maker,

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For more information, visit our webpage at
<http://www.hshsl.umaryland.edu/services/inspace/>.



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