








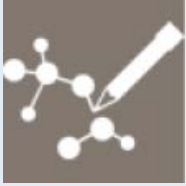
# **BIC Cassette as a New Tool to Enable Novel Biological Targets**

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BioSpain 2018, Sevilla


*Lilly*

# Open Innovation Drug Discovery (OIDD) Program: Engagement Modes

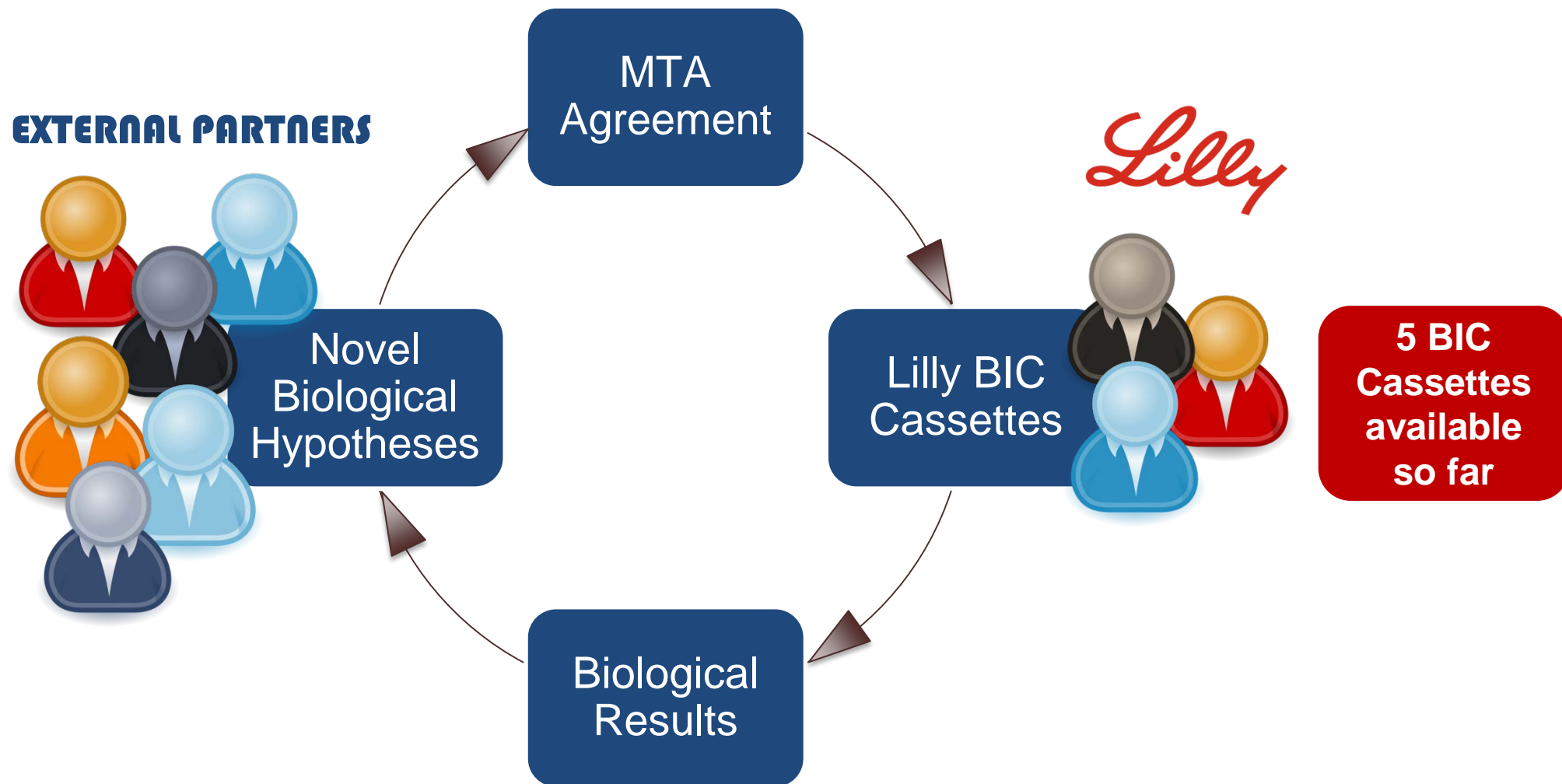
- ◆ Lilly is exploring innovative approaches to improve success rates of drug discovery efforts
- ◆ Collaborations with universities, research groups and small biotechs through the OIDD program have been a key element of our strategy for more than a decade

CHEMISTRY OFFERINGS		
 <p><b>Screening:</b> Biological screening in strategic areas of interest</p>	 <p><b>Neglected &amp; Tropical Diseases:</b> Work with non-profit partners</p>	 <p><b>Compound Acquisition:</b> Diversify the collection</p>
 <p><b>Synthesis:</b> Remote access to the ASL (Automated Synthesis Lab)</p>	 <p><b>Animal Health:</b> Biological screening in areas of interest for Elanco</p>	 <p><b>Design:</b> <i>In silico</i> tools</p>

**First priority for 2019 and beyond**

	<p><b>BIOLOGY OFFERING</b></p> <p><b>BIC Cassette:</b> Focused on identifying and validating novel biological targets aligned with Lilly’s areas of interest</p>
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# Biology Offering: BIC Cassette Process



Leveraging our compound collection to create an efficient external engagement tool to establish collaborations on novel targets

# BIC Cassette: Detailed Process

**Propose**

- Proposals will be submitted via OIDD platform.
- External partners will provide a non-confidential package describing the novel biological target and answer a questionnaire designed to define capabilities and scientific interest.

**Evaluate**

- Lilly will evaluate proposals based on biological hypothesis.
- Institutions should have capacity to screen the BIC cassette, a unique set of Lilly compounds disclosed in the public domain.
- The BIC cassette comes pre-plated and ready for screening.

**Select**

- Selected proposals (phenotypic or target based) will align with Lilly's areas of interests and be potentially relevant to certain disease biology.
- Signature of a MTA (Material Transfer Agreement) is required by Lilly prior to the BIC cassette submission.

**Implement**

- Participants will receive the BIC cassette for testing, and upload results via OIDD platform.
- In exchange for biological results, Lilly will facilitate structural information of active molecules.
- Results may form the basis for further collaboration or be used for publications/grants.

# BIC Cassettes: Design and Composition

## The “Exclusivity” Approach:

- ◆ Eliminated overlap with commercially available compound cassettes (Prestwick, LOPAC, NIH collections).
- ◆ Eliminated compounds present in Internet Known Drugs Database, eMolecules, ChEMBL, and compounds considered promiscuous.

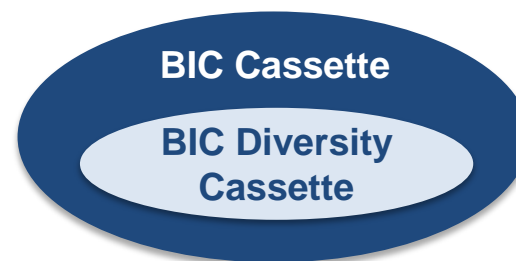
## The “No Singleton” Approach:

- ◆ Inclusion of compound series to ensure availability of analogs for testing.
- ◆ Diverse sampling of Lilly compounds with high proportion of drug-like features:

BIC Cassette – 20800 samples (~1000 scaffolds)

BIC Diversity Cassette – 4160 samples

BIC<sup>2</sup> Cassette – 510 covalent samples (fragments + SM)



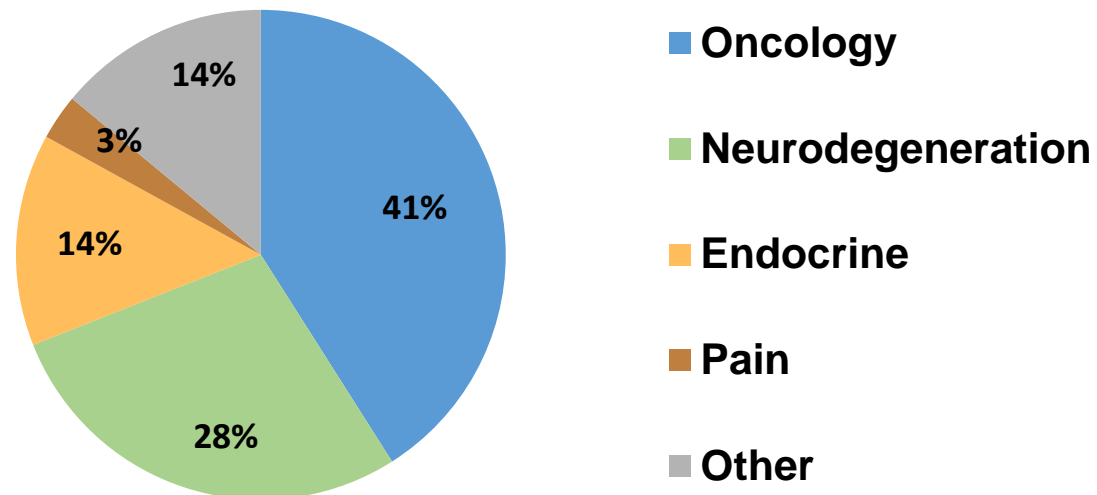
## Quality Control:

- ◆ Analytical assessment indicates >80% purity for all compounds.
- ◆ Additional biological annotation available for many cassette compounds.

# Strategic Areas of Interest



## Emerging Biology Collaborations



# Getting Started

For additional information, please visit our OIDD web page:

<https://openinnovation.lilly.com>

Or contact us at:

[openinnovation@lilly.com](mailto:openinnovation@lilly.com)

If you are interested in a TC with Lilly, please contact:

Maria Angeles Martinez Grau in Europe  
[amgrau@lilly.com](mailto:amgrau@lilly.com)

Maria Alvim-Gaston in USA  
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**Lilly** HOME WHAT IS OIDD? GETTING STARTED WHAT WE OFFER OIDD IN ACTION

“ We realize it’s important to bring together, through partnership and collaboration, diverse scientific talent and capabilities to find the best possible outcomes for the people we serve.”  
ALAN FALKOWITZ, PH.D.  
Vice President, Scientific Operations

**OPEN INNOVATION DRUG DISCOVERY**

SECURE LOGIN ▶

**For Scientists. By Scientists.**  
**MAKING LIVES BETTER. TOGETHER.**

The Lilly Open Innovation Drug Discovery (OIDD) program is founded on the belief that pharmaceutical companies, research institutions and academia share a mutual desire to advance innovative science. With secure design tools, iterative experimentation and expert analysis, OIDD creates a collaborative effort that pushes science forward. Read more in the OIDD Brochure.

**DESIGN**  
Cheminformatics tools for designing molecules with desirable drug-like properties or suited to a particular biological target. [MORE](#)

**SCREENING**  
Biological screening of your compounds in areas of strategic interest to Lilly. All data generated is available to you via the OIDD platform. [MORE](#)

**COMPOUND ACQUISITION**  
Opportunity to have your compounds selected for inclusion into Lilly’s compound collection using structural diversity tools. [MORE](#)

**SYNTHESIS**  
Access to the Lilly Automated Synthesis Laboratory, to explore new chemistry. [MORE](#)

**NEGLECTED & TROPICAL DISEASES**  
Opportunities to work with non-profit, public-private partnerships to contribute to early-stage drug discovery for unmet medical needs. [MORE](#)

***Thank you!***