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Applying DNA-encoded library (DEL) screens and machine learning (ML) to drug discovery in animal health

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Introduction

To address the unmet and emerging needs in animal health, Animol Discovery has engineered a biotechnology platform to identify novel small molecules. Compared to traditional high-throughput methods, the combination of DEL+ML offers a significant reduction in time and cost while increasing the probability of identifying a small molecule development candidate with optimal properties.

DNA-Encoded Library (DEL)

- Chemical building blocks combine to create highly diverse compounds with unique DNA sequence identifiers
- Library of 200 billion+ compounds
- Simultaneously screen target and anti-target(s) activity in multiplexed competitive assays

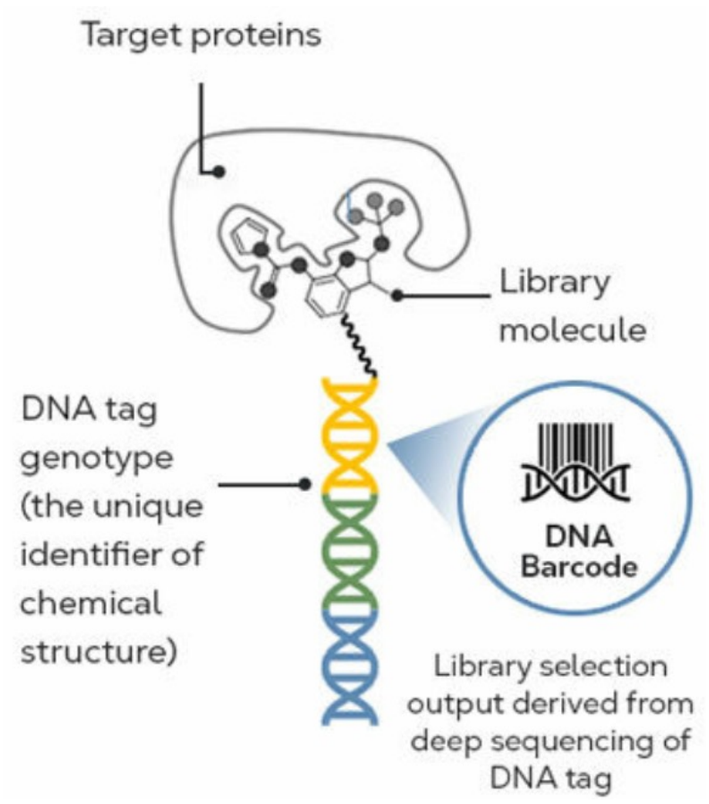

Figure 1: Representation of DEL compound with DNA tag bound to target protein.

Machine Learning (ML)

- Converts DEL binding data to predictive binding models
- Predictive algorithms provide insight to structure-activity relationships following screening
- Expert and automated compound selection to identify lead development candidates

In-Vivo

- Synthesize and test fewer compounds with improved characteristics
- Primary and secondary in-vitro assays provide gateway to in-vivo lab and target animal models
- 8-months from concept to in-vivo lead confirmation

Pipeline

- First project initiated in June 2020
- 10 projects planned for 2021
- Parasiticide metabolic and non-metabolic pathway targets

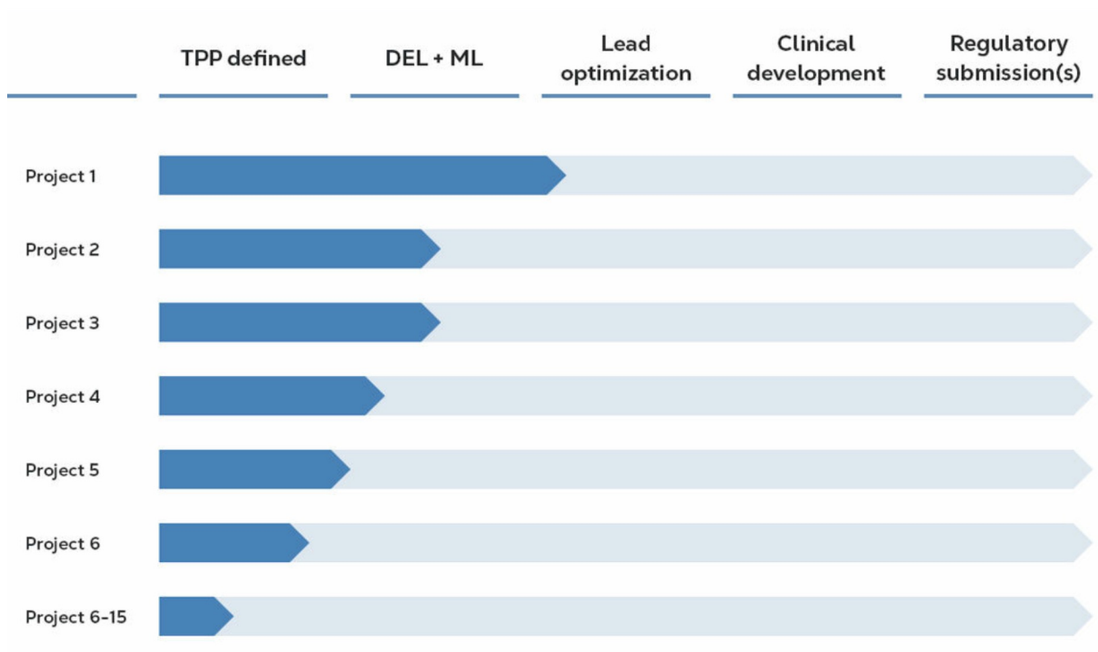

Figure 2: Animol's current project pipeline includes parasiticide and therapeutic targets.

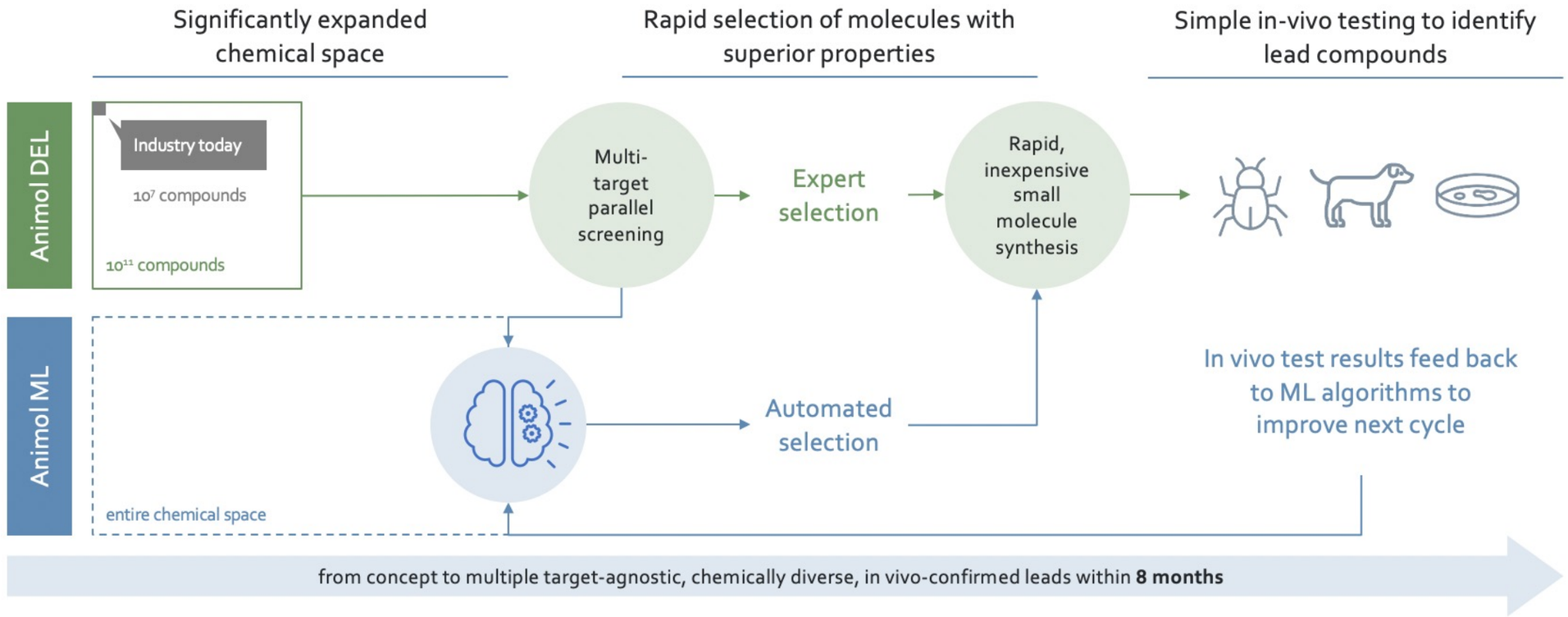

Figure 3: Animol's accelerated screening process to find optimal candidates for a target.

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