AI in Drug Discovery

- ML models can generate new molecules with specific properties or structures that are likely to be useful for drug development, reducing the time and cost of the discovery process. AI models can also be used in drug design optimization by exploring variations in molecular structure to optimize safety, efficacy, or specificity.

- Examples:

    - **sanofi** entered into AI drug discovery partnerships with
        Insilico Medicine **Atomwise** **Exscientia**

    - **Bayer** partnered with **Google** to use Google Cloud's Tensor Processing Units to discover drug candidates.

    - **GINKGO BIOWORKS** partnered with **Google** to pioneer new large language models for biological engineering applications, powered by Google Cloud's Vertex AI platform.

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AI in Clinical Trials

- AI and machine learning may be a useful tool to improve clinical trial design, eligibility screening, and data analysis which could reduce costs significantly and increase probability of success.

- Examples*:*

– **JOHNS HOPKINS** UNIVERSITY partnered with viz.ai to streamline patient enrollment for a Phase 2a trial.

– **gsk** partnered with **PathAI** on HORIZON, a randomized Phase 2b clinical trial.

– **ITERATIVE** HEALTH™ develops AI-assisted clinical trial recruitment tools.

– **ConcertAI** and **janssen** are partnering to improve the design of clinical studies and diversify clinical trials using AI.

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AI in Diagnostics

- AI and machine learning may more accurately predict diagnostic results than traditional tools.

- Image analysis: ML can be trained to recognize features in radiology, endoscopy, and any other medical imagery/video to speed clinical analysis. Generative AI can be used to generate synthetic medical images for training and validation of other AI models that assist in diagnosis and treatment planning.

- Examples:

    - GASTRO HEALTH partnered with iTERATIVE HEALTH to use its AI-based platform to scan images to diagnose gastroenterology disorders.

    - Bristol Myers Squibb partnered with viz.ai to develop a tool that uses an algorithm to detect hypertrophic cardiomyopathy.

Other Uses of AI in Life Sciences

- **Personalized medicine:** ML can analyze a patient's genomic and medical data to help generate personalized treatment plans.

- **Predictive modeling:** ML can generate models that can predict disease progression, drug efficacy, and toxicity based on patient data.

Key Collaboration Terms

License to AI Platform
- Licensors typically do not permit licensee to freely use or exploit platform technology
- Licensees may want to be unblocked through a license

Rights to Data Input
- Licensees may have confidentiality concerns around the use of data input
- For some AI platforms, once data has been added, it may not be able to be removed

Use of Improved AI Models
- Models often may only be used for the collaboration and are deleted after expiration/termination
- Many licensors seek to retain use of their trained models

Diligence
- Many licensees in early-stage target discovery deals do not want any diligence
- Licensors continue to push for diligence to ensure economics are paid (e.g., milestones, royalties)

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Other Key Collaboration Terms

❏ Consider the **structure of the collaboration**

❏ Think about how **data is defined,** especially in relation to know-how

❏ Consider what **exclusivity** standard should apply in collaborations

❏ Be careful how you define **data improvements**

❏ Review **confidentiality terms** from the perspective of the source of data

❏ Add **representations and warranties** about the AI technology

❏ Consider **data privacy and security concerns**

❏ Seek out **specialist support**