

AI Biotech Trends

NYCDSA Project 1: Web scraping
Isabel Alvarez de Lugo

The Data

Background knowledge of datasets

- BenchSci - Toronto based - uses AI to empower scientists to run more successful experiments to accelerate drug discovery.
- Simon Smith - CSO at BenchSci - combined two blog post

Dataset 1: **Drugs in the AI in Drug Discovery Pipeline Dataset**

Last Updated Jun 24, 2020

117 unique drugs - 262 unique variations

Dataset 2: **230 Startups Using AI in Drug Discovery**

Last Updated Jun 24, 2020

Purpose

Why do we care?

- My goal was to use **descriptive analytics** to try to understand and describe **AI biotech startups trends** domestically and globally.

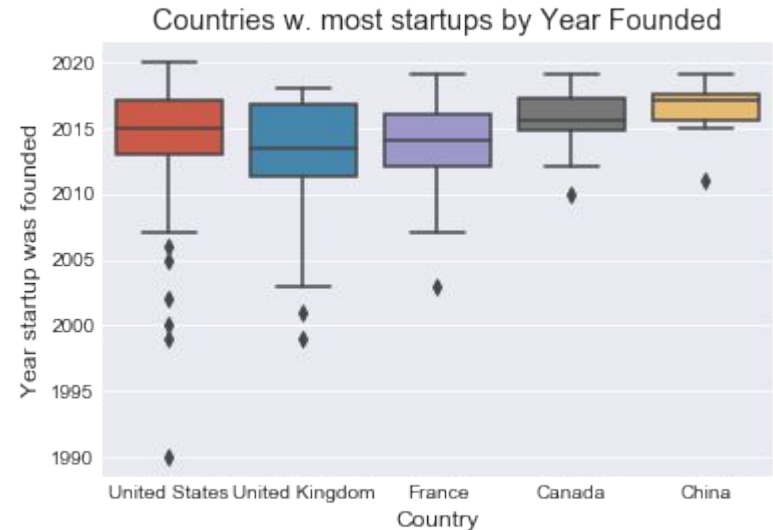
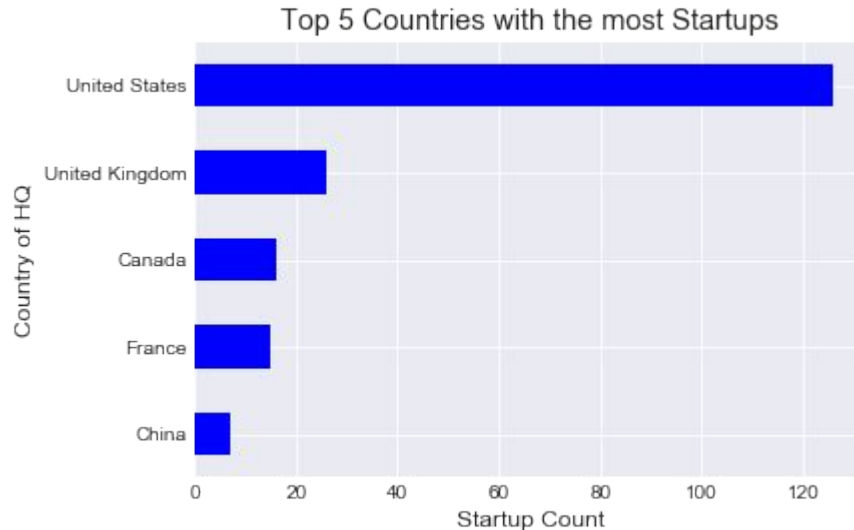
Questions

Research questions of interest: what do you want to find out?

- Have more AI startups been founded in recent years/has it peaked already?
 - How has the peak varied between countries?
- In what therapeutic area are the drugs in the AI in Drug Discovery Pipeline mostly in?
 - Does this differ between countries?
- What stage are they in?

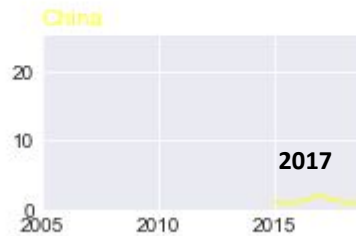
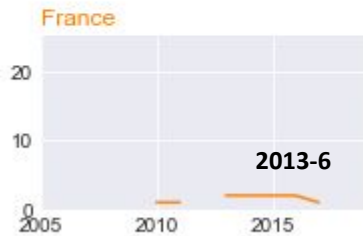
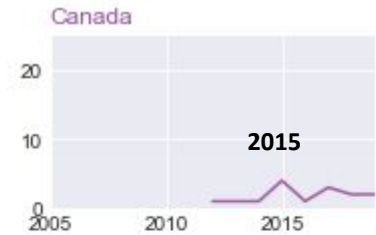
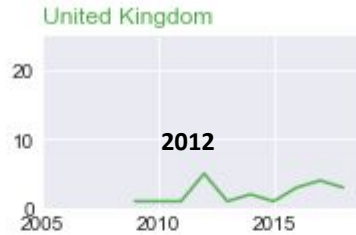
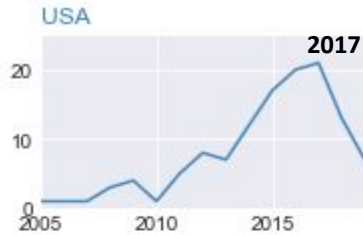
Startups Using AI in Drug Discovery Trends

Dataset 2: 230 Startups Using AI in Drug Discovery



Companies founded 2005-2019 by Country

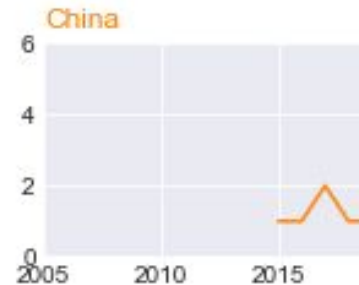
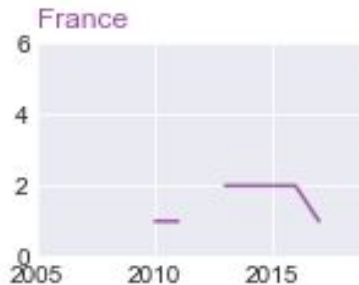
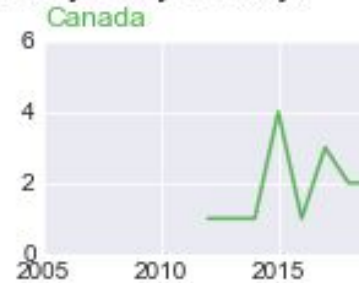
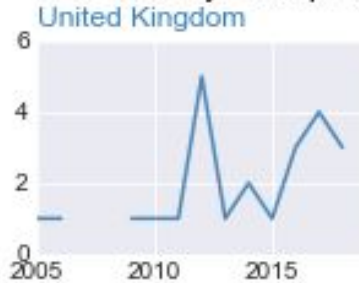
Dataset 2: 230 Startups Using AI in Drug Discovery



Companies founded 2005-2019 by Country

Dataset 2: 230 Startups Using AI in Drug Discovery

How many startups founded each year by Country?

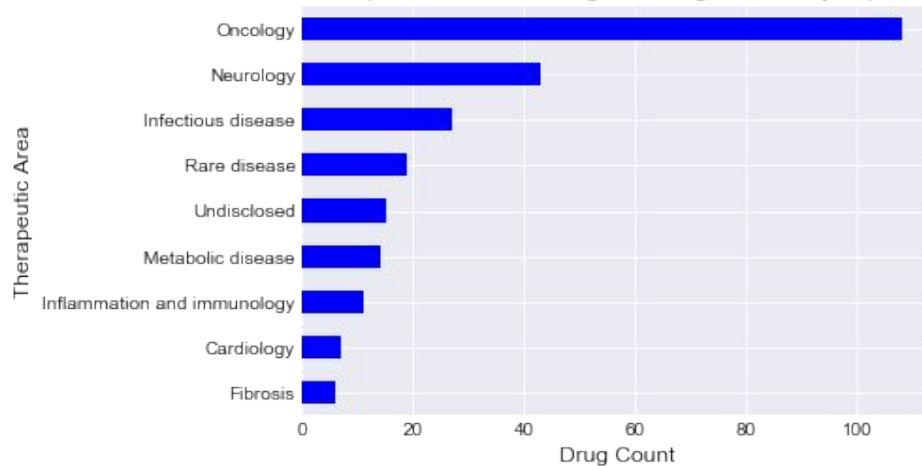


AI in Drug Discovery Pipeline:

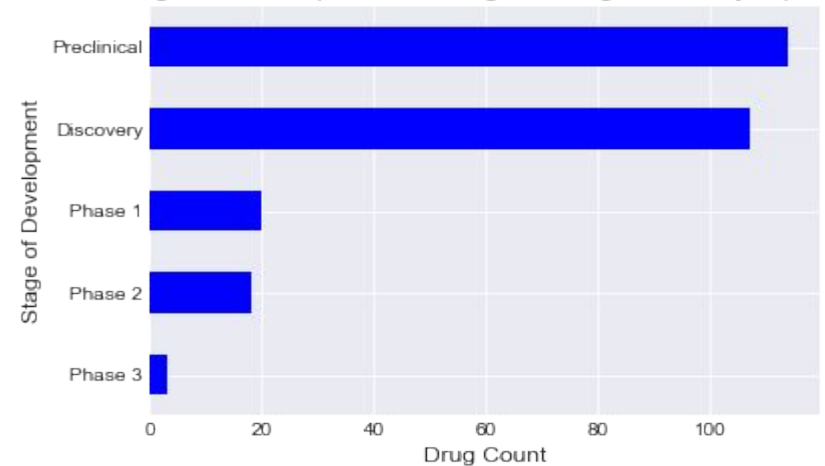
Dataset 1: Drugs in the AI in Drug Discovery Pipeline Dataset

117 unique drugs - 262 unique variations

Therapeutic Area of Drugs in Drug Discovery Pipeline

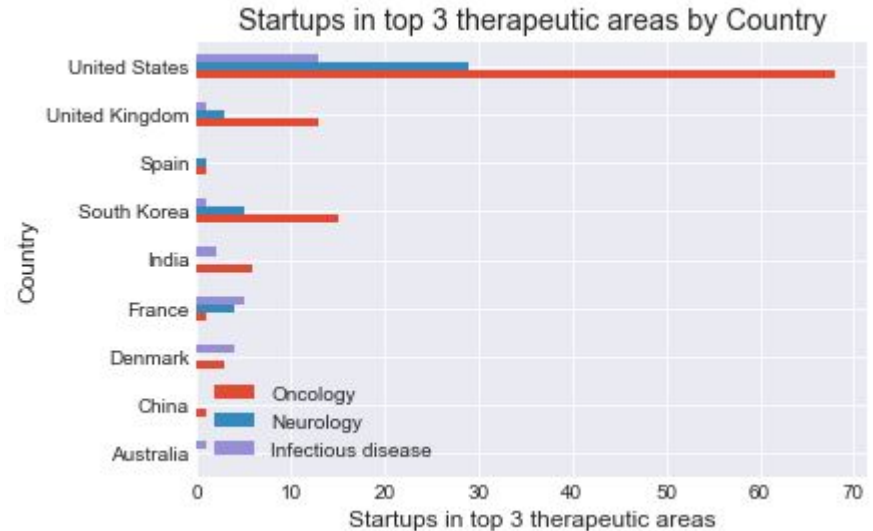
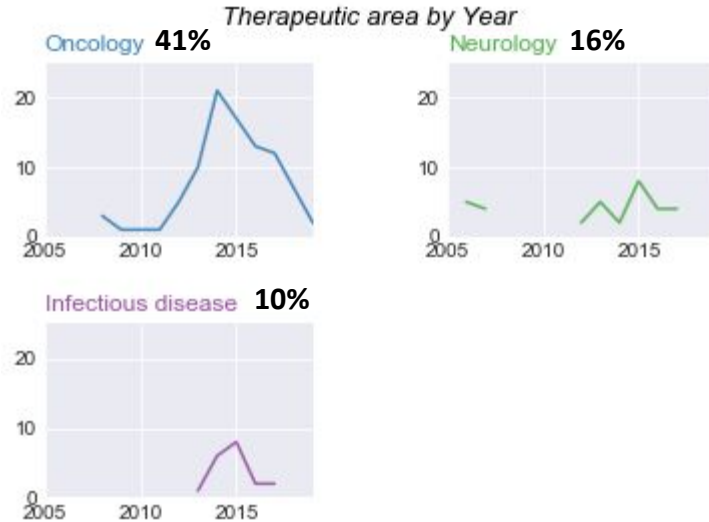


Stage of Development of Drugs in Drug Discovery Pipeline



Top 3 Therapeutic Areas by Year and Country

Merge of Datasets - 34 companies - 261 drug variations



Startups' Purpose

Dataset 2: 230 Startups Using AI in Drug Discovery



Conclusion

- The top three therapeutic areas of the drugs in the AI in Drug Discovery are oncology, neurology, and infectious disease.
 - Of the countries that have startups in all 3, oncology does lead, with the exception of France (infectious disease more common)
- Most drugs are in the preclinical & discovery phase.
- Number of AI in Drug Discovery peaked in 2017.
 - By country peak: US:2017, UK:2012, Canada:2015, France:2013-2016, China: 2017

Explanation of future work:

More in-depth look at the impact

- Pull more data on:
 - Funding (Private/Public)
 - Jobs created / team size
 - Real Estate
 - Diversity of teams



Thank you

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Data sourced from BenchSci

<https://blog.benchsci.com/drugs-in-the-artificial-intelligence-in-drug-discovery-pipeline>

<https://blog.benchsci.com/startups-using-artificial-intelligence-in-drug-discovery>

Link to GitHub:

<https://github.com/isa-adl/project1>