



Scientist of the Month:
Starring **Regina Barzilay**



Regina Barzilay

- **Dr. Barzilay is a Distinguished Professor for AI and Health in the Department of Electrical Engineering and Computer Science at MIT**
- **2017 MacArthur Fellow**
- **Member of CSAIL at MIT**
- **Research discipline is on NLP and deep learning applications to oncology and chemistry**



Photo from:

<https://news.mit.edu/2017/putting-data-in-the-hands-of-doctors-regina-barzilay-0216>

Deep Learning Model to Assess Cancer Risk on the Basis of a Breast MR Image Alone

- Obtained 1623 MRI examinations from 1164 women
- From these examinations, additional information was collected such as family and/or past history of breast cancer, etc
- Developed a deep learning model to predict whether or not a patient would have developed breast cancer within 5 years of the screening examination
- Model was trained solely on reconfigured MRI images
- Their Image-DL model had the highest discrimination accuracy compared against other state-of-the-art risk assessment models.
- Link to paper: <https://pubs.rsna.org/doi/pdf/10.1148/radiol.2019182716>

A Deep Learning Approach to Antibiotic Discovery

- Growing pressure to discover new antibiotics due to the rise in antibiotic-resistance bacteria.
- Issues in current antibiotic discovery (1) high cost (2) antibiotics continue to be 'rediscovered'
- This work trained a deep NN capable of predicting molecules with antibacterial activity
- Discovered halicin, a molecule from the Drug Repurposing Hub, that is structurally divergent from conventional antibiotics
- Link to paper:
[https://www.cell.com/cell/pdf/S0092-8674\(20\)30102-1.pdf](https://www.cell.com/cell/pdf/S0092-8674(20)30102-1.pdf)

Interested in learning more about Regina Barzilay? Check out some of her interviews!

Interview with Lex Fridman:

<https://www.youtube.com/watch?v=x0-zGdlpTeg>

MITxHarvard Women in AI Interview:

<https://www.youtube.com/watch?v=-Gz-znMZosM>