Green pharmacy in antibiotic development:
prolonging efficacy by prioritising compounds least likely to select for resistance

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NERC SCIENCE OF THE ENVIRONMENT

AstraZeneca

IMAGE: CDC, *Antibiotic resistance threats in the United States, 2013*. 2013, Centre for Disease Control and Prevention.

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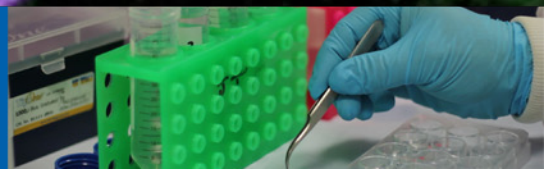
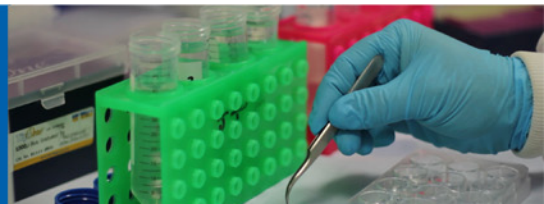
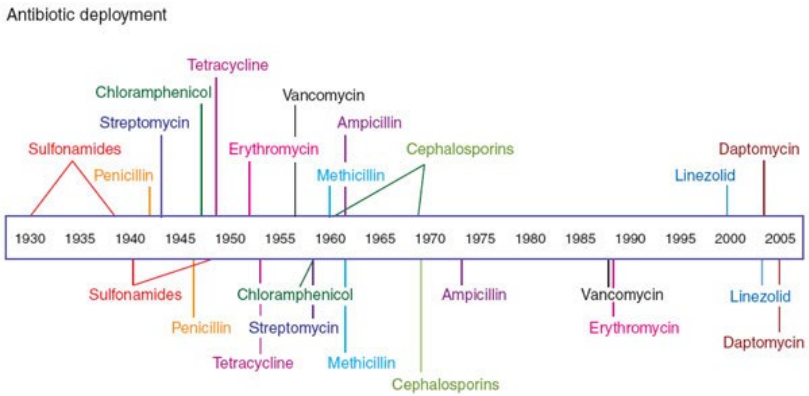


We are looking for collaborators!

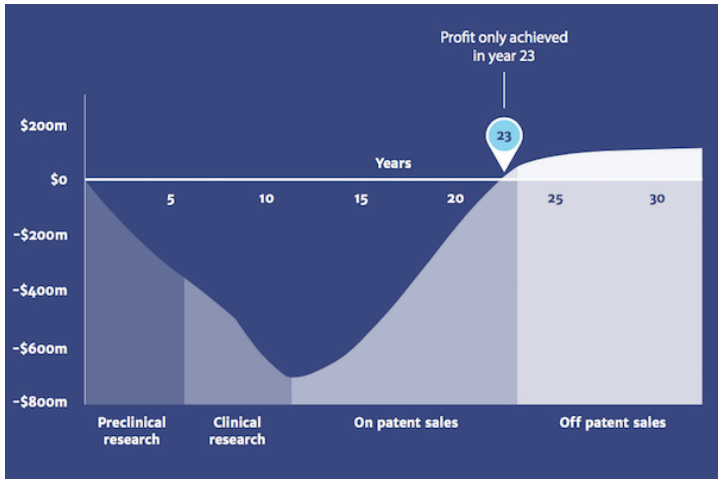
Able to provide abandoned compounds or those currently under development for testing.



The broken pipeline



From the following article
[Targeting virulence: a new paradigm for antimicrobial therapy](), Anne E Clatworthy, Emily Pierson & Deborah T Hung
Nature Chemical Biology **3**, 541 - 548 (2007) Published online: 20 August 2007, doi:10.1038/nchembio.2007.24



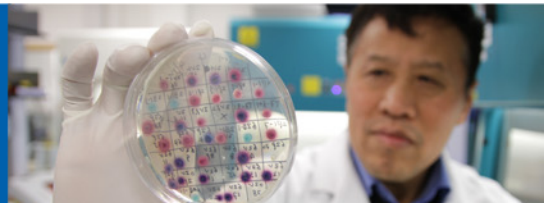
HM's Government & Wellcome Trust. Review on Antimicrobial Resistance. *Securing new drugs for future generations: the pipeline of antibiotics.* May 2015

Antibiotics are high risk, low profit

- Drugs take years to develop – cost
- Antibiotics are for acute illnesses – low return
  - Short term prescription only
  - Less return than for e.g. hypertension drugs, or other chronic conditions
- **They soon become ineffective due to novel resistances arising**

… The concepts of the **green pharmacy**… numerous approaches can be used to not only reduce or minimize the entry of APIs to the environment, but to simultaneously **improve the efficiency and effectiveness of healthcare**… with outcomes such as **lower costs for the consumer, improved therapeutic outcomes** and reduced incidence of unintended poisonings and drug diversion.

Christian G Daughton & Ilene S Ruhoy (2011) Green pharmacy and pharmEcovigilance: prescribing and the planet, Expert Review of Clinical Pharmacology, 4:2, 211-232, DOI: 10.1586/ecp.11.6



‘**S**elective **A**ssay for **G**rowth-based **E**ndpoints’

SAGE method for Green Pharmacy in antibiotic development

Thank you for your attention

Any questions?

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