Innovation or imitation deficit in drug development?

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Pharmaceutical innovation deficit
Pharmaceutical innovation deficit
Pharmaceutical innovation

Pharmaceutical “innovation deficit”
New molecular entity (NME) approvals in USA

Total NMEs (5yr average)
Early scientific ‘lamplight’

Paul Ehrlich and Sahachiro Hata
sleeping sickness, syphilis, and the *magic bullet*
Domagk and prontosil

Prontosil (1932-34)

Sulfanilamide (~1935)

Elixir Sulfanilamide (1937)
Scientific ‘lamplight’ of 1970s & ’80s

‘Receptor theory’ begets ‘rational drug design’

Drugs for ulcers, hypertension, cholesterol, depression, etc...
Current scientific lamplight...

Biopharmaceuticals

Drugs for cancer, HIV
New molecular entity (NME) approvals in USA

![Graph showing the number of NMEs approved by the US FDA from 1949 to 2009. The data shows an overall trend of increasing approvals with peaks in the late 1980s and early 2000s.](image-url)
New molecular entity (NME) approvals in USA

Total NMEs (5yr average)  Pioneers (5yr average)
New molecular entity (NME) approvals in USA
New molecular entity (NME) approvals in USA
Sunset on blockbuster primary care pharma
Thank you!

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