

# NANOMEDICINE

## Today and Tomorrow

Discovery

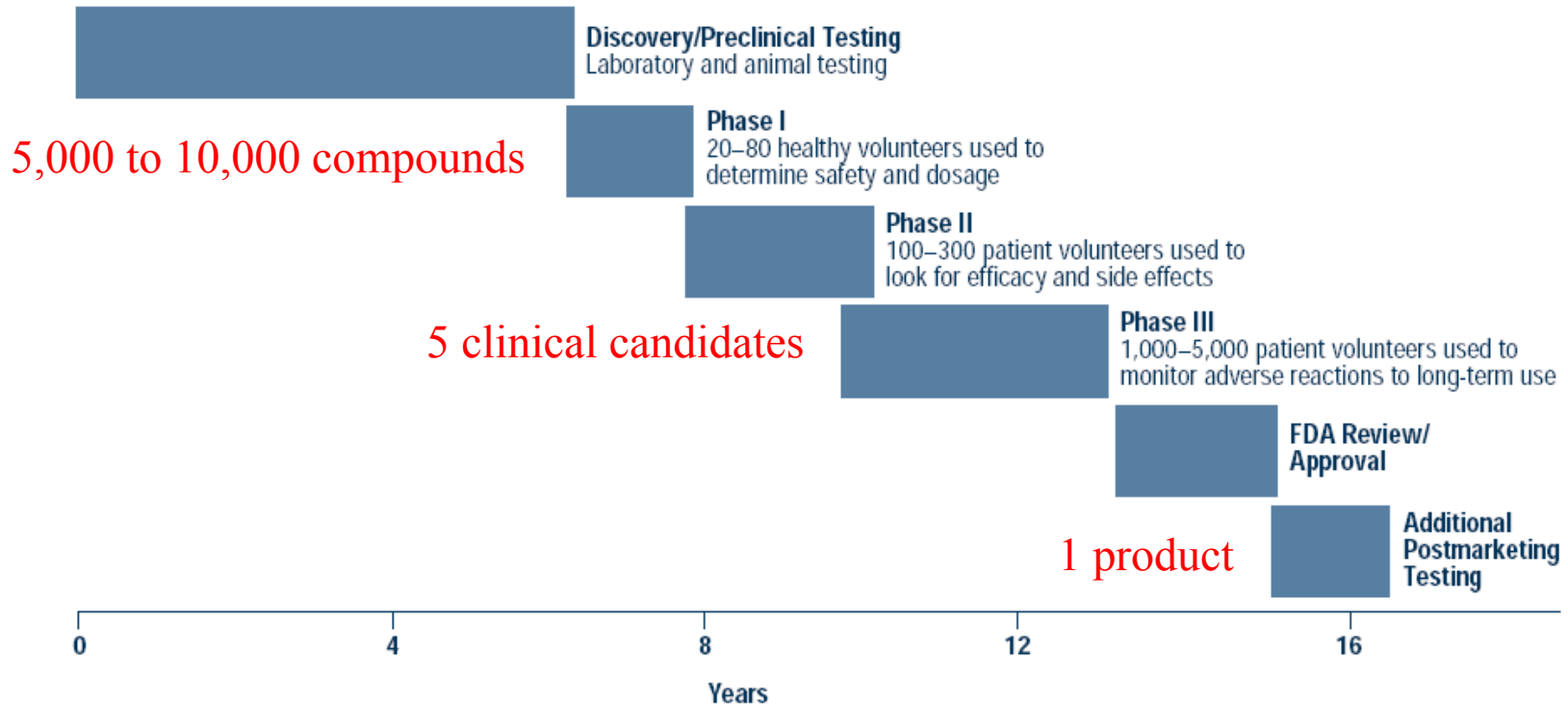
Diagnosis



**NANOMEDICINE**

Therapy

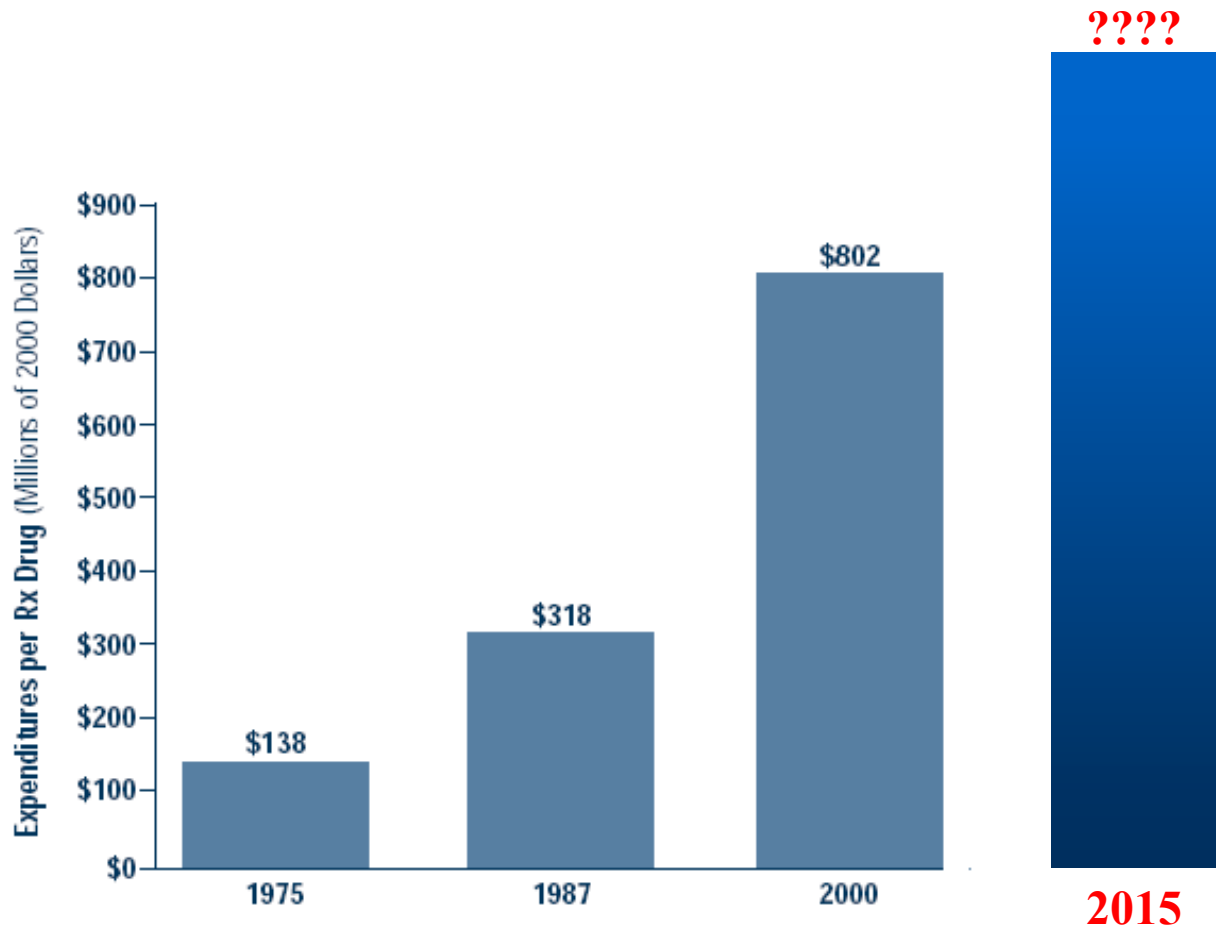
# Biopharmaceutical drug development timeline



Source: *Pharmaceutical Research and Manufacturers of America, based on data from Center for the Study of Drug Development, Tufts University, 1995.*

Source: *PhRMA, 2003*

# Cost of developing a new drug



Source: J. A. DiMasi, R. W. Hansen, and H. G. Grabowski, "The Price of Innovation: New Estimates of Drug Development Costs," *Journal of Health Economics* 22 (2003): 151-185.

# What can nanomedicine do?

- Enhance drug discovery, shorten development time
- Reduce costs
- Improve efficacy at clinical trials and beyond
  
- Facilitate early disease detection
- “Cure” cancer, Parkinson’s, Alzheimer’s...
- Avoid transplant/implant pitfalls
- Make affordable medicine available

# Nanomedicine: Today and Tomorrow

E.g., DNA arrays, imaging agents, drug/gene delivery, transplant/implant

## **Merck Signs License for C Sixty's Fullerene Technology**

Houston, TX – October 16, 2003

## **Nanoink Research To Enhance Genetic Screening and Speed Drug Discovery**

Chicago, IL – June 7, 2002

## **iMEDD, Inc. and Battelle agree drug delivery collaboration**

Columbus, OH – September, 2000

## **Quantum Dots Reveal Minute Details Of Brain Chemistry For First Time**

Hayward, CA – October 20, 2003

## **A Nanotech Company That's So Clean, You Could Eat Off It** **NanoBio uses nanotechnology to kill germs and deliver drugs/vaccines**

Philadelphia, PA – December 2002