New Drug Development. Drug discovery is an iterative process. It goes back and forth between theoretical biology; the necessary, appropriate, and humane use of animal assays to determine a compound’s biological activity in the body; and medicinal chemistry to optimize the compound. Then in human studies, clinical observations test hypotheses about how a candidate drug may target cancer cells; determine its safety and effective doses; and compare its ability to shrink tumors or stop cancer progression relative to standard therapy. The NIH generally helps fund all stages of research up through phase II clinical trials, as indicated by the red borders of some panels of the flowchart. While NIH also supports some phase III clinical trials, this portion of the drug development process is usually funded by industry and other private organizations and is distinguished by blue borders. Because this process is so rigorous, only four to seven percent of candidate drugs receive approval from the Food and Drug Administration (FDA).