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This lecture will describe the development of PSD95 inhibitors from the stage of molecular discovery in the basic research lab, through animal experiments including non-human primates, and then through to successful clinical trials. PSD95 inhibitors are molecules that inhibit pro-death signaling in neurons that are exposed to ischemia, and are among the few neuroprotectants that meet the STAIR criteria. However, the major challenges facing the development of neuroprotectants remain the complexity and heterogeneity of human stroke syndromes, the rapidity with which ischemic brain damage develops, and the variability in stroke care systems within and between countries. This lecture will also describe the challenges associated with designing a clinical trial that can demonstrate efficacy of an acute stroke neuroprotectant.

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