



## Themes of Drug Development and Technology

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The mainstays of new drug development are (1) A Pharmaceutical Company, (2) An Investor, (3) Researcher and (4) Technology.

The age old technology of animal testing in new drug development has now been supplemented with new technologies such as Complementary DNA microarray technology, Automated Nano-Patch-Clamp technique, Lab-on-a-chip (LOC) technology.

The LOC technology or the field of Microfluidics aims to improve and extend the possibilities of bioassays, cell biology and biomedical research based on the idea of miniaturization. Microfluidic systems allow more accurate modeling of physiological situations for drug development and enable systematic high volume testing for various aspects of drug discovery. Microfluidic systems physically mimic biological tissues and organs resulting in 'organ on a chip' which has an important role in expediting early stages of drug discovery and help reduce reliance on animal testing.

From start to finish, the entire process of drug development involves nine steps –

(1) Drug Discovery, (2) Preclinical Testing, (3) Investigational New Drug application, (4) Phase 1 Clinical Studies, (5) Phase 2 Clinical Studies, (6) Phase 3 Clinical Studies, (7) New Drug Application, (8) Prescription Drug User Fee Act, (9) Phase 4 Clinical Studies.

New technologies are accelerating drug development bringing hope to cure diseases.

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