Ion channels represent a significant opportunity to address an underexploited class of therapeutic targets. Nearly 150 novel ion channel modulators are reported to be in clinical development. This report examines:

- Ion channel modulators in clinical development and their potential
- Improved molecular understanding of ion channel structure and cellular activity
- High-throughput screening methods for identification of novel modulators
- Prospects for ion channel modulators and commercial successes to date
- Pipeline activities, expert views, and survey results

NEW TECHNOLOGIES FUEL INTEREST IN THIS TARGET CLASS
Ion Channel Modulator Pipelines: Targets and Agents in Development provides a comprehensive analysis of the ion channel modulator pipeline, breaking it down by company, ion channel type, and therapeutic indication. A number of interesting trends are revealed: Major pharmaceutical companies currently only account for just over one-third of all the ion channel modulators in development. The range of channel types targeted by ion channel modulators in development is relatively limited and heavily skewed toward a few channel types. Eighty percent of these ion channel modulators are being developed for diverse CNS indications.

This report also analyzes the approximately 100 ion channel modulators that have been approved for clinical use. These drugs have generated considerable revenues: Even though generic forms of many of these agents are now available, sales of these branded drugs were around $20 billion in 2007. However, relatively few of these were developed using channel-based screening approaches, and many were identified with little or no knowledge of their mechanism of action.

To date, ion channel modulators have been identified by various means, relatively few of which have so far been focused on direct screening of compounds for their activity on the channel(s) of interest. The past few years have seen significant developments that facilitate the identification of novel ion channel modulators. These improvements in screening methods should lead to more selective agents being identified and progressing into clinical development. We also examine other technical considerations when attempting to modulate ion channels, such as target distribution throughout the body, and the structure of ion channels and their multiple states (e.g., each state of the ion channel offers a different conformation for a potential ligand to recognize and thus any ion channel provides multiple potential targets).

Ion Channel Modulator Pipelines: Targets and Agents in Development concludes with a commercial and scientific outlook, expert interviews, and results from a survey gauging trends, current practices, and views on ion channel-focused R&D activity.

### In what areas of ion channel development are further advances going to be the most critical?

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Source: Insight Pharma Reports

### Overview

- **Identification/characterization of targets**
- **Advances in basic science**
- **Screening technology**
- **Structural information**
- **Other**

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