Epigenetic Therapy in Oncology Drug Pipeline Update

Description: Epigenetic abnormalities are frequent events implicated in the development of many different types of tumors. The first epigenetic modification that was linked to cancer was methylation and to date there are several approved epigenetic drugs in oncology (eg, Azacitidine, Decitabine, Vorinostat, Romidepsin, Ruxolitinib).

Today a majority of drugs targets histone methylation and acetylation, also frequently dysregulated in cancer cells, in the form of inhibitors of histone acetyltransferases (HATs), histone deacetylases (HDACs), histone methyltransferases (HMTs) and histone demethylases (HDMs). In addition, there is a third major category of drug targets that contain bromodomains (eg, the BET family BRD2, 3, 4, and BRDt) that bind to histone acetylation regions of the genome and recruit certain proteins.

So far, epigenetic drugs have shown significant synergistic potential in combination with traditional chemotherapy drugs, and many combination trials are currently under way.

There are today 96 companies plus partners developing 112 epigenetic therapy drugs in 441 developmental projects in cancer. In addition, there is 1 suspended drug and the accumulated number of ceased drugs over the last years amount to another 33 drugs. Epigenetic Therapy In Oncology Drug Pipeline Update lists all drugs and gives you a progress analysis on each one of them. Identified drugs are linked to 56 different targets. All included targets have been cross-referenced for the presence of mutations associated with human cancer. To date 54 out of the 55 studied drug targets so far have been recorded with somatic mutations. The software application lets you narrow in on these mutations and links out to the mutational analysis for each of the drug targets for detailed information. All drugs targets are further categorized on in the software application by 18 classifications of molecular function and with pathway referrals to BioCarta, KEGG, NCI-Nature and NetPath.

How May Drug Pipeline Update Be of Use?
- Show investors/board/management that you are right on top of drug development progress in your therapeutic area.
- Find competitors, collaborations partners, M&A candidates etc.
- Jump start competitive drug intelligence operations
- Excellent starting point for world wide benchmarking
- Compare portfolio and therapy focus with your peers
- Speed up pro-active in-/out licensing strategy work
- Fast and easy way of tracking drugs using search engines; just one click from inside the application and you may search the World Wide Web and PubMed for any drug.

Drug Pipeline Update at a Glance

Investigators
Includes more than 96 principal companies plus their collaborators. There is direct access from inside the application to web pages of all principal companies.

Note: You are able to sort and find drugs according to companies and partners from drop-down menus in the application. You may also sort and find drugs according to country of companies.

Drug name & Synonyms
Lists commercial, generic and code names for drugs.

Developmental stage
This Drug Pipeline Update contains 112 epigenetic therapy drugs in development, which have a total of 441 developmental projects in cancer. In addition there are suspended and ceased drugs.

Pipeline Breakdown According to Number of Drugs
Marketed# 7
Pre-registration# 1
Phase III# 9
Phase II# 31
Phase I# 40
Preclinical# 50
No Data# 4
Suspended# 1
Note: You are able to sort and find drugs according to developmental stage from drop-down menu in the application.

Indications
Included epigenetic therapy drugs are also in development for 97 other indications, where of 83 are different cancer indications.

Note: You are able to find and sort drugs according to type of indication from drop-down menu in the application.

Targets
Mutations
All targets are cross-referenced with the Catalogue of Somatic Mutations in Cancer (COSMIC). It is designed to store and display somatic mutation information and related details and contains information relating to human cancers. To date 54 out of the 55 studied drug targets so far have been recorded with somatic mutations and the software application lets you narrow in on these mutations and links out to the mutational analysis for each of the drug targets for detailed information.

Biological Structures
The identity of available biological structures on 45 drug targets was retrieved from the RCSB Protein Databank for you to easily review the 1071 structures available today among drug targets.

Identified drugs are linked to more than 56 different targets, divided into 18 classifications of molecular function:
- Catalytic activity
- Chromatin binding
- Deacetylase activity
- Deaminase activity
- DNA binding
- DNA-methyltransferase activity
- Kinase activity
- Lipid kinase activity
- Methyltransferase activity
- Molecular function unknown
- Protease inhibitor activity
- Protein serine/threonine kinase activity
- Protein-tyrosine kinase activity
- Receptor activity
- Receptor signaling complex scaffold activity
- Transcription regulator activity
- Transmembrane receptor protein tyrosine kinase activity
- Transporter activity

Sub-Cellular Localization
Identified targets are categorized into 12 different primary and alternate sub-cellular localizations:
- Clathrin-coated vesicle
- Cytoplasm
- Cytoskeleton
- Endoplasmic reticulum
- Endosome
- Extracellular
- Mitochondrial membrane
- Mitochondrion
- Nucleolus
- Nucleus
- Plasma membrane
- Ribosome

Note: You are able to find and sort drugs according to target gene name, protein name, molecular function of target, target localization, presence of mutations and availability of biological structures of target from drop-down menus in the application.
Target Expression Profile
Direct links are provided from inside the application to 76 protein expression profiles of 52 drug targets in various human tissues and cancer types, cell lines and primary cells, including up to:
- 48 different normal tissue types
- 20 different types of cancer
- 47 cell lines
- 12 samples of primary blood cells

Pathway Referals
Identified targets have been cross referenced against their involvement in different cellular pathways, according to BioCarta, KEGG, NCI-Nature and NetPath.
- BioCarta# 136 Pathways
- KEGG# 115 Pathways
- NCI-Nature# 181 Pathways
- NetPath# 32 Pathways

Note: You are able to find and sort drugs according to targeted pathways from drop-down menus in the application.

Mechanism
In total there are different drug mechanism of action represented in this Drug Pipeline Update.

Note: You are able to find and sort drugs according to mechanism of action from drop-down menu in the application.

Compound
Identified drug compounds are described by:

Compound type, Chemical name, CAS Number and molecular weight

Note: You are able to sort and find drugs according to compound type from drop-down menu in the application.

Drug Profile
Progress analysis and review of drug development. A typical drug profile reports on, depending on stage of development and available information:

Drug Name & Synonyms
Presentation of drug name and synonyms

Principal Company & Partners
Presentation of principal company and partners

Target and Molecular Function of Target
Described target(s) is/are presented with:
Official Gene Symbol – Chromosome Location – Gene & Protein Name – Molecular Function

Target Localization
Described target(s) is/are presented with primary and alternate localizations.

Target Expression Profiles
Links to protein expression profile(s) of target(s) in various human tissues, cell lines and primary cells, including up to:
- 48 different normal tissue types
- 20 different types of cancer
- 47 cell lines
- 12 samples of primary blood cells

Mutation
All targets are cross-referenced with the Catalogue of Somatic Mutations in Cancer (COSMIC). It is designed to store and display somatic mutation information and related details and contains information relating to human cancers.
Biological Structures
The identity of available biological structures on drug targets was retrieved from the RCSB Protein Databank for you to easily review what available structures of drug targets exist.

Targeted Pathways
Described target(s) is/are matched for the involvement in cellular pathways according to BioCarta, KEGG, NCI -Nature and NetPath.

Mechanism
Drug mechanism of action

Developmental Projects
Summary field of developmental projects for the drug, including indication, developmental stage and status.
Example:
Cancer, myeloma – Phase II Clinical Trial – Active
Cancer, prostate – Phase III Clinical Trial – Ceased

Drug BioSeeker Group's software
Short introduction to drug

Compound Data
Compound type, Chemical name, CAS Number and molecular weight

Patent Data
Available patent information related to the drug is presented here.

Fillings and Approvals
Approvals and submissions
Analyst comments

Deals & Licensing
Collaborations and deals
Availability for licensing

Phase IV Data
Available Phase IV development data, developmental history and scientific data.

Phase III Data
Available Phase III development data, developmental history and scientific data.

Phase II Data
Available Phase II development data, developmental history and scientific data.

Phase I Data
Available Phase I development data, developmental history and scientific data.

Phase 0 Data
Available Phase 0 development data, developmental history and scientific data.

Preclinical Data
Available preclinical development data, developmental history and scientific data.

Discovery Data
Available discovery development data, developmental history and scientific data.

Application Features
Search, Find and Filter Panel with Initial Result Presentation
With this panel you can define your selectivity in each drug search with up to 24 different drug specific parameters. Each parameter has multi-select options to them and can be used as either an inclusion parameter or exclusion parameter.

The initial result table is a dynamic sortable table which gives you a fast overview of found results and can be narrowed down further by your own additional keywords.
Direct linkage from inside the application to related internet resources
- Drug data is linked to search engines like Google and PubMed
- Drug target data is linked directly to BioCarta, Human Protein Atlas, KEGG, NCI-Nature, NetPath etc.
- Direct links to company web pages of companies

Dynamic Report Generator
Our dynamic report generator lets you with ease and speed generate html reports directly in your web browser (Internet Explorer and FireFox), whether it is a single drug profile or an entire search you want have a report of.

System Requirements
- Operating system: Windows (2000/XP/Vista/7/8) for Mac Users the service is only available online
- Browser Application (Internet Explorer, Firefox, Chrome, Safari)
- Internet access (to access related internet resources)

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