Epical BioSciences SL

New epigenetic agents: therapeutic approach in cancer

- **Epigenetic modifications** are a major driver of biological complexity and can have a role in the development of a variety of disease treatments.
- Epigenetics is an **emerging area** covering a broad range of mode of actions. However, only four drugs are currently approved and eleven agents are in early-stage trials.
- **Novel proprietary compounds** binding two epigenetic targets have been developed:
  - more effective than reference epigenetic compounds *vs* different cancer cell lines.
  - first-in-class dual reversible inhibitors of DNMT and HMT.
- **Indication:** cancer.

Opportunity and Competitive Landscape

- The fact that the epigenome is dynamic is of particular relevance to drug development, as it implies that specific disease-associated epigenetic states may be reversible with treatment.
- To date, the most investigated therapeutic area in terms of epigenetics is cancer.
- Beyond cancer, epigenetic factors have been implicated in inflammatory, autoimmune, metabolic, neurological and cardiovascular disorders.
- Four drugs with epigenetic mechanisms of action are currently approved. All of them are anticancer drugs and they are only focused on 2 modes of action (HDACs and DNMT-irreversible).
- Mostly, research is focused on developing novel HDAC inhibitors.

Application Scope

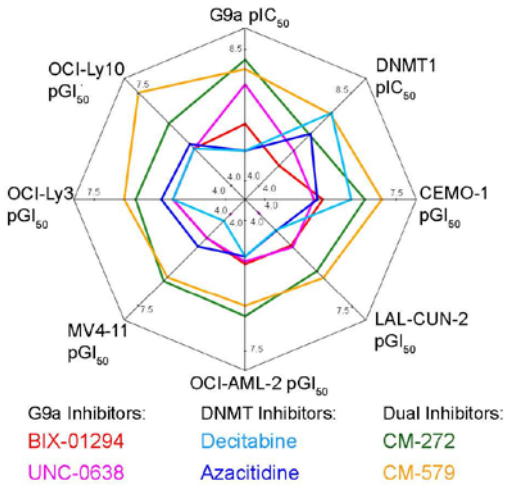
Cancer: a wide range of neoplastic diseases in where the epigenetics targets addressed are implied: from hematological malignancies, such as Acute leukemias and lymphomas, to solid tumors in liver, bladder and others.

New agents

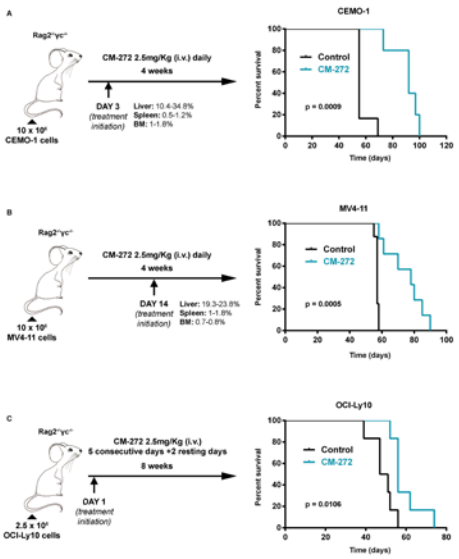
Small molecules hitting DNMT and HMT, IC_{50} at low nM range.
They are not SAM-competitive; in fact, selective *vs* 37 additional epigenetic targets
MoA validated, through epigenetic marks, in cell lines and *in-vivo.*
First-in-class reversible inhibitors.

Proof of Concept

· ***In vitro*** studies: G9a and DNMT1 inhibitory potencies (expressed as pIC_{50}) and the growth inhibitory potencies (expressed as pGI_{50}) for compounds CM-272, CM-579, selective G9a inhibitors (BIX-01294 and UNC-0638) and irreversible DNMT inhibitors (Azacitidine and Decitabine).



· ***In vivo*** studies: PoC and efficacy studies using CM-272 in Acute Lymphoblastic leukemia (A), Acute Myeloyd leukemia (B) and Lymphoma (C).



Intellectual Property Papers

Four independent patents filed: WO2015192981, WO2017085053, WO2017102677, and EP17382365.9 (unpublished).

San José-Enériz, Agirre, Rabal et al *Nat Commun* 2017. DOI: 10.1038/ncomms15424

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