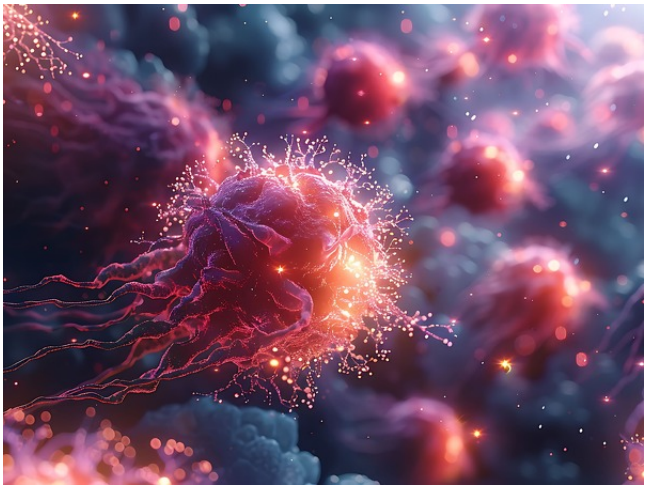
INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

PRC1 Inhibitors (Accelerate Blue)

TECHNOLOGY NUMBER: 2018-372



Technology ID
2018-372

Category
Therapeutics and Vaccines
Life Sciences
Accelerate Blue Foundry - 2025/Life Sciences

Inventor
Jola Grembecka
Tomasz Cierpicki

Further information
Stefan Koehler
shkohler@umich.edu

View online

Accelerate Blue Foundry - 2025 (Life Sciences)

OVERVIEW

We have developed first-in-class small molecule inhibitors that selectively target the PRC1 protein complex, disrupting growth of leukemia cells and potentially offering a new generation of targeted anti-leukemia drugs which force cancer cells to mature and lose their tumor-forming potential.

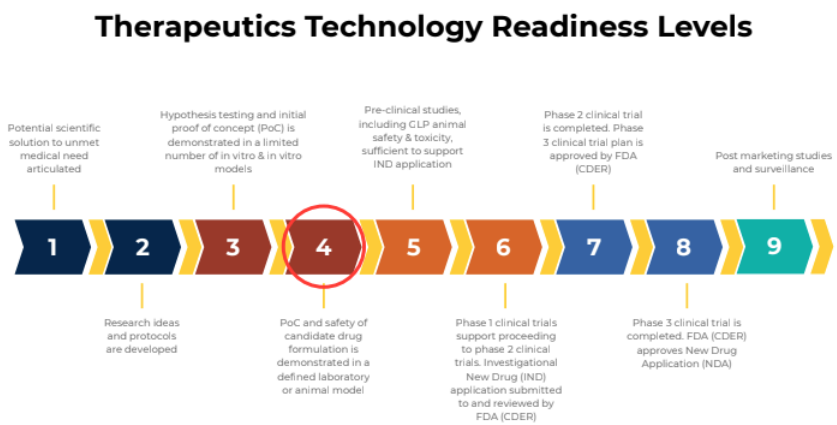
DESCRIPTION

Our technology centers on small molecules that bind directly to the PRC1 complex, specifically the Ring1A and Ring1B proteins, which are pivotal for the survival and self-renewal of leukemia cells. These compounds work by blocking activity of PRC1 complex to ubiquitinate histone proteins, that keeps these cells in an undifferentiated, therapy-resistant state. Unlike existing cancer treatments that often target all rapidly dividing cells and risk harming healthy tissues, our inhibitors show high specificity for leukemic cells by inhibiting their growth and pushing these cells to transform into less dangerous, mature cells. This mechanism results in a dual advantage: directly killing the disease-driving cells and minimizing relapse, which is a major unmet need in leukemia therapy.

VALUE PROPOSITION

- **First-in-class molecules**: unlike conventional treatments, our molecules show strong and selective binding to the PRC1 complex, sparing other proteins and potentially reducing side effects.
- **Leukemia cell-differentiation effect**: By forcing leukemia cells to mature, PRC1 inhibitors address the primary cause of leukemia recurrence and durable resistance to standard chemotherapies.
- **Broad anti-cancer potential**: Although developed for leukemia, the underlying mechanism could extend to other cancers.

TECHNOLOGY READINESS LEVEL



INTELLECTUAL PROPERTY STATUS

ALL ISSUED PATENTS:

- US11319302
- CN112533581B
- EP3813784
- EP4155293

Other patent applications pending.

MARKET OPPORTUNITY

The urgent need for therapies that specifically eliminate leukemia stem cells is highlighted by high relapse rates and poor survival outcomes in acute leukemia, especially in cases resistant to standard treatments. Our technology has practical applications in the pharmaceutical industry, particularly in developing next-generation targeted cancer therapeutics for both hematological malignancies and potentially solid tumors. Key clinical opportunities include adjunct therapy for chemo-resistant acute myeloid and lymphoblastic leukemias (AML and ALL), lymphomas, and potentially some solid cancers.

Recent market analyses and ongoing research trends emphasize a strong demand for targeted drugs, with global reports estimating the leukemia therapeutics market could reach over $17 billion by 2030, buoyed by the emergence of precision therapies.