# Benzamide or N-hydroxybenzamide Kinase Inhibitors Derived from Doebner-Povarov Reaction

Safe, non-hormonal fertility reduction for animal population control and potential pet contraceptive.

Researchers at Purdue University have developed new drugs to treat cancer, inflammation, and neurological diseases. The researchers' previous anticancer compound, HSD1217 a 4-(3H-pyrazolo[4,3-f]quinolin-7-yl)benzamide was only moderately effective at inhibiting Cyclin Dependent Kinases, CDKs. CDK2 and CDK12 are emerging as important therapeutic targets for cancer treatment. By modifying the Benzamide moiety of HSD1217, the researchers developed HSH2177 and HSD1993 analogs that have dramatically improved activity in inhibiting CDKs. By inhibiting CDK function, these compounds could be used as potential anti-cancer agents, anti-inflammatory agents, or agents against neurological diseases.

**Technology Validation:** The new drugs were validated in vitro. HSH2177 inhibited CDK2 and CDK12 with IC50 values of 7 nM and 27 nM, respectively. HSD1993 inhibited CDK2 and CDK12 with IC50 values of 4 nM and 9 nM respectively. These IC50 values are much lower than those of HSD1217, which inhibits CDK2 with an IC50 value of 185 nM.

#### Advantages:

- Highly specific at targeting CDK2 and CDK3
- Potently inhibits Tyrosine Kinase 3, FLT3

## **Applications**:

- Treating cancer, inflammation, and neurological diseases

Related publication:

#### **Technology ID**

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#### Category

Biotechnology & Life
Sciences/Biomarker Discovery &
Diagnostics
Pharmaceuticals/Drug Discovery
& Development
Biotechnology & Life
Sciences/Analytical & Diagnostic
Instrumentation

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Dual FLT3/haspin kinase inhibitor based on 3H-pyrazolo[4,3-f]quinoline scaffold with activities against acute myeloid leukemia

https://doi.org/10.1039/D3MD00192J

**TRL:** Pharmaceuticals

## **Intellectual Property:**

Provisional-Patent, 2022-06-02, United States

NATL-Patent, 2023-06-02, China

NATL-Patent, 2023-06-02, Europe

NATL-Patent, 2023-06-02, Canada

NATL-Patent, 2023-06-02, Japan

NATL-Patent, 2023-06-02, India

PCT-Patent, 2023-06-02, WO

NATL-Patent, 2024-11-29, United States

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