Hec 1 Inhibitor For Cancer Treatment

Tech ID: 24390 / UC Case 2013-847-0

BRIEF DESCRIPTION

Hec1 is a novel target for cancer therapy. Researchers at UC Irvine developed Hec1 inhibitors that could potentially be new anti-cancer drugs.

FULL DESCRIPTION

Hec1 overexpression has been observed in a variety of human cancers and is associated with adverse clinical outcomes in primary breast cancers. The phosphorylation of Hec1 by Nek2 is critical for proper mitotic progress and chromosome segregation. Perturbation of Hec1 or Nek2 function by antagonists leads to mitotic abnormalities, which lead to cell death. Therefore, Hec1 could be an important target for developing novel cancer therapies.

Researchers at UC Irvine developed small compounds, INH41, INH78, INH81, INH154, INH168, and INH174, that directly bound to Hec1. They were identified as potent, sub-micromolar IC50 inhibitors of cancer cell growth. In addition, both INH41 and INH154, suppressed leukemia, osteosarcoma, and glioblastoma cancer cell growth (see the attached table). Neither INH41 nor INH154 had significant growth inhibitory effects on non-tumorgenic fibroblast and epithelial cells, which makes those compounds potentially ideal treatments for a variety of cancers.

Table. INH41 and INH154 suppressed leukemia, osteosarcoma, and glioblastoma cancer cell growth.

Cancer type	Cell line	INH41 (μM)	INH154 (μM)
Cervical	HeLa	0.67	0.2
Breast	MDA-MB-468	0.69	0.12
adenocarcinoma	MDA-MB-231	0.4	0.14
Leukemia	K562	0.62	0.11
Osteosarcoma	U2OS	0.63	0.11
Glioblastoma	T98G	0.86	0.14
Fibroblast	HS27	62	40
Epithelial	MCF10A	58	36

SUGGESTED USES

The invention can be used for cancer therapy.

ADVANTAGES

The invented Hec1 inhibitory compounds have specific adverse effects to the cancer cells. No significant growth inhibitory effects to normal tissue were caused by the Hec1 inhibitors treatments.

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Materials & Chemicals**
  - Biological
  - Chemicals
- **Medical**
  - Disease: Cancer
  - Disease: Women's Health

RELATED CASES

2013-847-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,670,197	06/06/2017	2013-847
United States Of America	Issued Patent	9,422,275	08/23/2016	2013-847

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