



BONE MORPHOGENETIC PROTEIN RESPONSIVE REPORTER CELL LINE "BRITER"

TECHNOLOGY AVAILABLE FOR TRANSFER

DESCRIPTION

The technology offers a cell line for measuring "Bone Morphogenetic Protein (BMP)" signaling. The cell line expresses single dual reporter plasmid construct for measuring BMP signalling. The cell line is developed by stably integrating a BMP responsive dual luciferase reporter construct in the immortalized calvarial osteoblast cells isolated from tamoxifen inducible Bmp2; Bmp4 double conditional knockout mouse strain. This cell line, named BRITER (BMP Responsive Immortalized Reporter cell line), undergoes osteogenic differentiation in response to exogenous BMP and specifically reports BMP signaling activity in a robust and sensitive manner.

The cell line has been developed at Department of Biological Sciences and Bioengineering, Indian Institute of Technology, Kanpur, India.

POTENTIAL APPLICATIONS

- Screening of chemical agonists of BMP receptors
- Screening of an agent that modulates gene expression and/or replication of BMP responsive element
- Development of efficient assay system to measure BMP signaling with high sensitivity and specificity
- Measurement of BMP activity

COMPETATIVE ADVANTAGE

- Development of low cost, less time taking assay for measuring BMP signalling
- Highly specific to exogenously added BMP protein or chemical BMP agonist with easily detectable reporter activity. BRITER responds to exogenously added BMP2 protein within 1 hour
- BRITER has an in-built internal control to enable specific detection of BMP activity modifiers
- The endogenous level of BMP signaling in the cell line is controlled. The endogenous level of BMP signaling can be reduced by treatment with 4-hydroxytamoxifen (4-OHT) to increase the sensitivity of the assay
- The cell line is responsive to changes in BMP signaling pathway
- The phenotype of the cell line is stable

INTELLECTUAL PROPERTY

- Indian patent granted
- PCT application filed

PUBLICATION

Yadav PS, Prashar P, Bandyopadhyay A (2012) BRITER: A BMP Responsive Osteoblast Reporter Cell Line. PLoS ONE 7(5): e37134. doi: 10.1371/journal.pone.0037134

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