Novel Antibody for Inhibiting Nodal-Dependent Activity

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Technology description

Novel monoclonal antibody that inhibits the binding of Nodal to the Activin receptor complex
#therapeutics #antibody #biomedical #researchtool
Northwestern researchers, together with Italian collaborators, have characterized a monoclonal antibody that inhibits the activity of Nodal, a growth factor driving abnormal growth in a variety of cancers. In normal development, Nodal is important in maintaining stem cell pluripotency, and subsequently disappears in most normal adult tissues. The inventors discovered, however, that Nodal is reactivated in aggressive tumor cells and is also associated with invasive disease states across many cancer types. Currently, existing technologies for inhibiting Nodal signaling are based on suppressing Nodal expression using antisense technology or commercial polyclonal antibodies, and there is no available Nodal-based ELISA. The novel monoclonal antibody described here is highly selective and possesses a high affinity to Nodal, and can be used effectively as a capture antibody in a sandwich-based ELISA. In addition, because it is easy to scale the production of this antibody, it is an ideal candidate for pharmaceutical development.

Publications

Topczewska JM, Postovit L-M, Margaryan NV, Sam A, Hess AR, Wheaton WW, Nickoloff BJ, Topczewski J and Hendrix MJC (2006). Embryonic and tumorigenic pathways converge via Nodal signaling: role in melanoma aggressiveness.Nature Medicine, 12, 925-932.
Lawrence MG, Margaryan NV, Loessner D, Collins A, Kerr KM, Turner M, Seftor EA, Stephens CR, Lai J, APC BioResource, Postovit L-M, Clements JA, Hendrix MJC (2011). Reactivation of Embryonic Nodal Signaling is Associated with Tumor Progression and Promotes the Growth of Prostate Cancer Cells.Prostate, 71(11).

Application area

Therapeutic for cancers (and possibly other diseases) with abnormal Nodal activity
A diagnostic tool for detecting Nodal in bodily fluids

Advantages

High affinity to Nodal
Highly selective
Easy to scale production

Institution

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