

Fibroblast Growth Factor 1



Inventors

- Angie Rizzino

UNeMed currently offers a variety of licensing options and collaborative development opportunities with the University of Nebraska Medical Center

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## NR-6-R Cells for the Study of FGFs

**Technology Fields:** Research Tools - Cell Lines

**Technology ID:** 167

### Summary

Fibroblast Growth Factors (FGFs) and fibroblast growth factor receptors together form a highly conserved signaling system that is used in both developmental and physiological processes of the adult. The 18 known FGFs are involved in the development and homeostasis of virtually every human tissue. Given its ubiquity, establishing FGF activity is a critical step in understanding a wide variety of biological processes. Scientists at the University of Nebraska Medical Center have substantial expertise in assaying FGFs. Specifically, the isolation of NR-6-R cells and their use as a highly sensitive bioassay for FGFs was first reported by Dr. Angie Rizzino at UNMC within the Eppley Institute for Research in Cancer and Allied Diseases. NR-6-R cells are a versatile and sensitive tool for determining FGF activity and have been employed in a variety of assays. UNeMed is currently offering licensing opportunities for the NR-6-R cells produced in Dr. Rizzino's laboratory. The cells can be employed in a wide variety of assays, such as soft agar assays and proliferation assays, to identify and measure FGF activity.

### Publications

- Rizzino A, Ruff E. 1986. Fibroblast Growth Factor Induces the Soft Agar Growth of Two Non-Transformed Cell Lines. *In Vitro Cellular & Developmental Biology*, 22: 749-755. [Link](#)

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**Fibroblast Growth Factors** (FGFs) and fibroblast growth factor receptors together form a highly conserved signaling system that is used in both developmental and physiological processes of the adult (1). The 18 known FGFs are involved in the development and homeostasis

of virtually every human tissue (2). Given its ubiquity, establishing FGF activity is a critical step in understanding a wide variety of biological processes.

Scientists at the University of Nebraska Medical Center have substantial expertise in assaying FGFs. Specifically, the isolation of NR-6-R cells and their use as a highly sensitive bioassay for FGFs was first reported by Dr. Angie Rizzino at the University of Nebraska Medical Center's Eppley Institute for Research in Cancer and Allied Diseases (3). NR-6-R cells are a versatile and sensitive tool for determining FGF activity and have been employed in a variety of assays.

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### Example 1: Soft Agar Assay

Anchorage independent growth is one of the best in vitro indicators of a cell's tumorigenic capacity. FGF is able to alter the monolayer morphology of NR-6-R cells and induce their soft agar growth. Moreover, the effects of FGFs on NR-6-R cells between other growth factors, such as TGF $\beta$ , which does not induce soft agar growth in NR-6-R cells, even though TGF $\beta$  is able to induce soft agar growth in other cell lines.

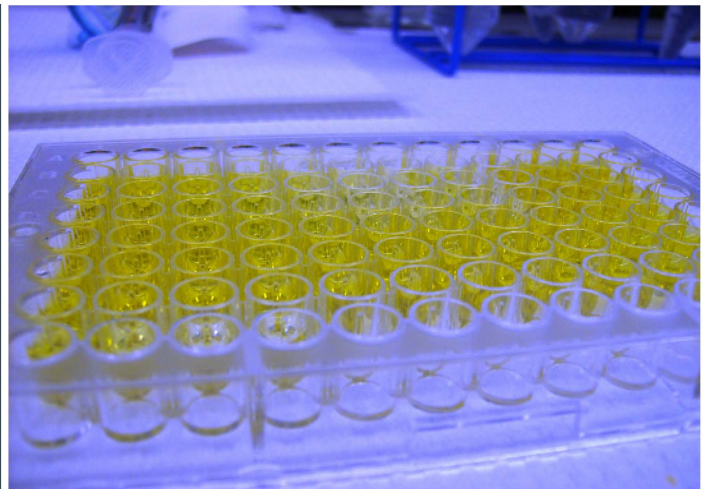
Inducing soft agar growth of NR-6-R cells is a simple and elegant assay to monitor FGF activity and is well described in the literature (3).

### Example 2: Proliferation Assay

In the R&D systems 2003 catalog, the company described an assay that utilizes the NR-6-R cells to measure the activity of a variety of FGFs. This assay involved placing NR-6-R cells in individual wells, adding test samples to each well, and then measuring proliferation by monitoring 3H-Thymidine incorporation.

The R&D systems application assay shows how the NR-6-R can be used in a standard proliferation assay as well and can be used in high throughput applications.

For more information about the R&D systems' assay please visit [www.rndsystems.com](http://www.rndsystems.com)



## References

- (1) Itoh N, and Ornitz D. Evolution of the Fgf and Fgfr gene families. 20 TRENDS IN GENETICS 563-569 (2004).
- (2) Harmer N. Insights into the role of heparin sulphate in fibroblast growth factor signaling. 34 BIOCHEMICAL SOCIETY TRANSACTIONS 442-445 (2006).
- (3) Rizzino A, Ruff E, Fibroblast Growth Factor Induces the Soft Agar Growth of Two Non-Transformed Cell Line. 22 IN VITRO CELLULAR & DEVELOPMENTAL BIOLOGY 749-755 (1986).

UNeMed is a for profit corporation that provides technology transfer services to the University of Nebraska Medical Center. Founded in 1991, UNeMed evaluates, secures protection for, markets and commercializes technology derived from research at University of Nebraska Medical Center. For more information about the NR-6-R cells or to ask questions about how UNeMed can help you design an assay, please contact Matt Boehm. For more exciting technologies please visit [www.unemed.com](http://www.unemed.com).

