*Case #335*

# Regulation of GSK3β via a Novel p38 MAPK Phosphorylation Site

Abnormal high and low levels of glycogen synthase kinase-3 (GSK3β) activity have been associated with a wide variety of disorders, including neurological diseases, stroke, head trauma, diabetes and cancer. Critical to the control of the cell signaling, gene expression and metabolic activity regulated by GSK3β is phosphorylation of GSK3β at multiple sites. Drs. Rincon and Thornton have identified a new GSK3β phosphorylation site that is regulated by p38 mitogen-activated protein kinase (MAPK) and provides p38 MAPK mediated survival in specific tissues, including B-cells necessary for antibody development after immunization. In addition, antibodies have been developed that recognize this phosphorylation site.

## Applications:

- Therapeutic target for GSK3β mediated diseases.
- Antibodies for identification of GSK3β.

## Advantages:

- Novel p38 MAPK mediated phosphorylation site.
- Phosphorylation at this site is required for B-cell survival.
- Inhibition of phosphorylation in cancer and diabetes used reduce cell survival.

## Intellectual Property and Development Status:

US Patent Nos. 8,445,648 and 10,052,365
Licensing rights available, including research and diagnostic use of antibodies.

## References:

Phosphorylation by p38 MAPK as an alternative pathway for GSK3beta inactivation. Thornton, TM *et al* PMC2597039

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