



Novel Polyclonal Antibody to Detect a Bruton's Tyrosine Kinase Phosphorylation Site

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SUMMARY

Researchers at UCLA have identified a polyclonal antibody that recognizes one of the known regulatory Btk tyrosine sites, making it possible to detect the phosphorylation of the tyrosine site.

BACKGROUND

Brutons tyrosine kinase (Btk) is a kinase enzyme that plays an important role in B cell stimulation and maturation. B cell maturation and function is impaired when there is a Btk mutation, leading to X-linked agammaglobulinemia (XLA). It is known that B cell stimulation occurs after the activation of Btk, which is correlated with an increase in the phosphorylation of the regulatory Btk tyrosine site, Btk Y223. Currently, the only method for distinguishing the phosphorylation site is through the process of metabolic radiolabeling of phosphates, enzymatic digestion of the Btk protein, and then the separation of the resulting phosphopeptide fragments (phosphopeptide mapping). Phosphopeptide mapping is a difficult and time-consuming technique where only a few samples can be processed. There is a commercially available anti-phosphotyrosine antibody that recognizes the phosphorylated site through immunoblot and immunoprecipitation assays. However, there is not an antibody that has more specificity to the regulatory Btk 223 tyrosine site. There is a need for a more specific and easier technique of distinguishing the Btk tyrosine site, and consequently for the detection of B cell stimulation and maturation.

INNOVATION

Investigators at UCLA have identified a polyclonal antibody, 223PYAb, that recognizes the known regulatory tyrosine phosphorylation site, Tyr223. Therefore, it is possible to detect the phosphorylation of Tyr223 using immunoblot and immunoprecipitation techniques.

APPLICATIONS

- Detection of Tyr223 phosphorylation, as well as B cell stimulation

ADVANTAGES

- Faster and simpler technique than phosphopeptide mapping
- Specificity of polyclonal antibody to Tyr223

STATE OF DEVELOPMENT

In vitro studies have been conducted using BCR-stimulated Ramos cells.

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OTHER INFORMATION

KEYWORDS

process/procedure, detection,

polyclonal antibody, Brutons tyrosine

kinase, Btk, XLA, B cell, tyrosine

phosphorylation site research tool

CATEGORIZED AS

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