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[Medicine] NHRI Identifies Significant Diagnostic Criterion for Lupus Erythematosus

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Now News (2011/10/11) National Health Research Institutes (NHRI)'s Immunology Research Center has discovered that the kinase MAP4K3/GLK controls autoimmunity, and because of its specificity in the autoimmunity mechanism, it can be regarded as a significant diagnostic criterion as well as therapeutic targets for lupus erythematosus.

NHRI's Distinguished Research Fellow Tse-Hua TAN said, autoimmune diseases are diseases as serious as cancers that can kill; they arise from overactive immune responses of the body against substances normally present in the body. In other words, the body actually attacks its own cells. This situation is caused when T cells, which normally are defenders, overproduce too large amounts of inflammation-relevant cytokines such as IL-17 and TNF-α under the stimulation of the transcription factor NF-κB's over-activation, or when they accelerate B-Lymphocytes' production of autoantibodies that are too many not to attack the health tissues and organs inducing chronic multi-system inflammatory diseases. We do not have effective solution to cure or control the diseases by now.

The research team with members from both NHRI and Taichung Veterans General Hospital spent two years and finally found the critical role the kinase MAP4K3/GLK plays. It can directly get combined and activated together with its down-stream kinases, making the transcription factor NF-κB signal and activate T lymphocytes. In this way, it controls autoimmunity.

The team also found that MAP4K3/GLK as the upstream molecule has higher specificity both from in vivo and in vitro experiments. If it is the target of inhibition, the side influences on the other necessary signal pathways can be avoided, so that the side effects could be reduced. It is hence highly potential with regard to clinic applications.

According to TAN, the team ascertained the relation between the number of MAP4K3/GLK and lupus erythematosus, as each of the more than a hundred patients participating in the research had a large number of MAP4K3/GLK, while the number and the disease condition were positively correlated. Hence, he believed the concentration of MAP4K3/GLK in the blood could help with the diagnosis of the disease. With the present criteria, the diagnosis of lupus erythematosus can take several months and even several years. That of ankylosing spondylitis takes even longer; some cases take five years to determine the diagnosis.

The findings were published in the October issue of Nature Immunology (Impact Factor: 26). TAN said, the findings had provided with a new model and direction of thought for developing treatments of autoimmune diseases, cancers and IL-17 relevant diseases.

With the assistance of NHRI's Center for Technology Transfer and Incubation, the provisional patent for the findings was already granted, and the applications for official patents in Taiwan and the U.S. were submitted. The team planned to cooperate with NHRI's Institute of Biotechnology and Pharmaceutical Research on developing new target drugs.

Reference:
Now News 2011/10/11 (Chinese)

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