Medical Xpress

Japanese researchers identify a protein linked to the exacerbation of COPD

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Researchers from the RIKEN Advanced Science Institute and Nippon Medical School in Japan have identified a protein likely to be involved in the exacerbation of chronic obstructive pulmonary disease (COPD). This protein, Siglec-14, could serve as a potential new target for the treatment of COPD exacerbation.

In a study published today in the journal *Cellular and Molecular Life Sciences* the researchers show that COPD patients who do not express Siglec-14, a glycan-recognition protein, are less susceptible to exacerbation compared with those who do.

COPD is a chronic condition in which the airways and alveoli in the lungs become damaged, making it increasingly difficult for air to pass in and out. It is the 4th leading cause of death worldwide and its prevalence is on the rise. Exacerbation, or a sudden worsening of the COPD symptoms often triggered by bacterial or viral infection, directly leads to the decline of the quality of life, and even to the death, of the patient.

Based on the facts that Siglec-14, which is made by innate immune cells, binds to the bacteria that often trigger exacerbation, and that approximately 1 out of 4 people in Japan cannot make Siglec-14 because of genetic polymorphism, the research team led by Drs. Takashi Angata and Naoyuki Taniguchi (RIKEN Advanced Science Institute) and Drs. Takeo Ishii and Kozui Kida (Respiratory Care Clinic, Nippon Medical School) hypothesized that the presence of Siglec-14 may influence the frequency of exacerbation episodes in COPD patients.

The team analyzed the correlation between the genotype of SIGLEC14 gene and the frequency of COPD exacerbations during 1 year of monitoring in 135 COPD patients, and found that those patients who do not have Siglec-14 (31 patients) suffer far fewer episodes of exacerbations (nearly 80% less) on average compared with those who do (104 patients).

These findings by the team suggest that COPD patients may be stratified based on the SIGLEC14 genotype for more efficient and personalized care. They also imply that Siglec-14 protein is involved in the exacerbation of COPD, and that a compound that blocks the inflammatory events triggered by Siglec-14 engagement could be used to prevent or treat the exacerbation of COPD.

More information: Takashi Angata, Takeo Ishii, Takashi Motegi, Ritsuko Oka, Rachel E. Taylor, Paula Campos Soto, Yung-Chi Chang, Ismael Secundino, Cong-Xiao Gao, Kazuaki Ohtsubo, Shinobu Kitazume, Victor Nizet, Ajit Varki, Akihiko Gemma, Kozui Kida, and Naoyuki Taniguchi. "Loss of Siglec-14 reduces the risk of chronic obstructive pulmonary disease exacerbation". *Cellular and Molecular Life Sciences*, 2013, doi: 10.1007/s00018-013-1311-7

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