Andrographolide derivatives for its use as treatment for inflammatory diseases related to cytokine storm

CSIC, the Polytechnic University of Valencia, the University of Navarra and the Medical Applied Research Foundation have developed semi-synthetic derivatives of andrographolide, a plant-derived product, very useful for the treatment of inflammatory diseases related to a massive cytokine release. These new compounds show a secure and specific way to control the inflammation, that can be caused by a viral infection, as COVID-19, a bacterial infection or by immunotherapy.

Industrial partners are being sought to collaborate through a patent licence agreement or co-development.

An offer for Patent Licensing or Collaboration for development

Plant-derived compounds with anti-inflammatory effect

Cytokine storm is an uncontrolled immune response where the body releases excessive cytokines, causing high fever, swelling, nausea, fatigue and even multiple organ failure in severe cases. There are treatments based on monoclonal antibodies and drugs focused on inhibiting those cytokines, but they present toxicity in most cases with major secondary effects.

The developed compounds derived from the andrographolide, an existing component in Andrographis paniculata, a long-standing traditional medical plant widely used in Asia, Africa and Central America with therapeutic qualities such as antiviral, antibacterial and anti-inflammatory effects.

These andrographolide derivatives constitute a new tool, more specific and safe than the current treatments, in order to control the inflammatory response particularly due to COVID-19, bacteria with superantigens or CAR-T, TIL o BiTE cell therapies.

Main innovations and advantages

- Semi-synthetic compounds of simple synthesis from a natural compound (which is commercialized).
- Strong anti-inflammatory and immunomodulatory activity tested in in-vitro cells and in vivo models of inflammation (zebra fish, mice).
- Non-mutagenic and do not present toxicity in model organisms.
- Via oral or parenteral administration route.
- Regulatory preclinical development is getting completed and the production is being scaled up to industrial level.
- A clinical trial (phases I and II) in COVID-19 patients is being planned.

Patent Status
European patent application filed suitable for international extension

For more information, please contact:
Raquel Ballestero Lozano
Deputy Vice-Presidency for Knowledge Transfer
Spanish National Research Council (CSIC)
Tel.: 91 568 1919
E-mail: raquel.ballestero@csic.es
ana.sanz@csic.es
comercializacion@csic.es