



HEALTH & BIOMEDICAL

Bicyclic peptides for target therapy against cancer and inflammatory diseases

NEW DRUGS & THERAPIES

PRIORITY NUMBER

102022000012431

PRIORITY DATE

06/13/2022

PATENT STATUS

📌 Filed

LICENSE

Italy

RESEARCH TEAM | INVENTORS

Alessandro Angelini, Laura
Cendron, Nicola Frasson, Ylenia
Mazzocato

The urokinase human enzyme (uPA) stimulates **cancer cell motility** and has been identified as a major player in various stages of cancer, particularly in cancer metastasis, and in inflammatory diseases. The **bicyclic peptides** there patented can detect selectively the hUPA and **inhibit** its activity, with higher effectiveness than currently marketed inhibitors.

Technical Features

Bicyclic peptides are next generation **therapeutic molecules** that exhibit properties typical of monoclonal antibodies (high **target affinity** and specificity) and small molecules (high plasma stability and good tissue penetration). The herein invented compounds can **detect and inhibit the enzyme uPA** that is involved in extracellular matrix degradation, and may therefore be useful in the treatment of pathological conditions effectively counteracted by huPA inhibition, particularly primary or metastatic forms of **cancer and inflammatory diseases**. Bicyclic peptides have in general low toxicity and immunogenicity and can be formulated in pharmaceutical compositions for parenteral administration, also in combination with other active ingredients.

Possible Applications

- Cancer treatments, ev. combined with other active ingredients;
- Pharmaceutical compositions for parenteral administration.

Advantages

- High binding affinity ($K_i = 4 \text{ nM}$);
- Greater specificity in recognizing the target protein (uPA);
- Increased tissue penetration;
- High plasma stability;
- Tunable half-life;
- Low toxicity.

PATENT OWNERS

Università degli Studi di Padova
Università Ca' Foscari Venezia

