OUEST VALORISATION

TECHNOLOGY OFFER

NEW TARGET FOR ASTHMA

INHIBITORS OF RAC1 FOR INDUCING BRONCHODILATION

TECHNOLOGY

The molecular mechanisms responsible for airway smooth muscle cells (aSMC) contraction and proliferation in airway hyperresponsiveness (AHR) associated with asthma are still largely unknown. The small GTPases of the Rho family (RhoA, Rac1, and Cdc42) play a central role in SMC functions including migration, proliferation, and contraction.

We have identified the major role of RAC1 in aSMC contraction and its involment in AHR associated with allergic asthma. We have demonstrated that allergic asthma-associated excessive bronchoconstriction and AHR is dependent on RAC1 activity.

The invention concerns new compounds, inhibitors of RAC1 and theirs use for treating disorders of the airways, especially for treating asthma.

Our results show :

- a high affinity of inhibitors to RAC1 (KD 30 nM)
- a high specificity (no off-target interaction or toxicity)
- RAC1 inhibitor prevents bronchoconstriction and respiratory inflammation (Ex vivo and in vivo data)

APPLICATIONS

- Acute asthma

KEY BENEFITS

- Prevention of bronchoconstriction and airway hyperresponsiveness,
- Decrease of pulmonary inflammation
- No toxicity nor side effect

INTELLECTUAL PROPERTY

- PCT application : WO2014198909 [13.06.14]
- Extension : USA, Europe
- European Application : EP17305662.3 [17.06. 06]

STAGE OF DEVELOPPEMENT

- Target validation
- In vitro and in vivo validation
- Pharmacology (PK/PD, safety screen, ADME Tox)

LABORATORY

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