The anti-inflammatory and bronchodilating properties of the novel pharmacological compound Sul-121.

**Introduction**

Chronic obstructive pulmonary disease (COPD) is characterized by airway obstruction and chronic inflammation [1]. Although most patients can be treated with (combinations of) bronchodilating agents and anti-inflammatory glucocorticosteroids, a subset of patients responds poorly to these drugs leading to increased hospitalizations [2].

In the present study, we explored the anti-inflammatory and bronchodilating properties of a novel pharmacological compound Sul-121 in vitro and in vivo.

**Aim**

**Figure 1.** Sul-121 dose-dependently altered CSE-induced IL-8 release. Cells were treated with the indicated concentrations of Sul-121 in the presence or absence of cigarette smoke extract (CSE) for 24 h. Cell supernatants were collected for IL-8 ELISA. **: p<0.01, ***: p<0.001, compared with CSE control. Fenoterol served as a positive control. Data represent as mean±SEM of n=6-8.

**Figure 2.** Sul-121 prevented CSE-induced nuclear translocation of Nrf2 and p65, without significantly affecting phospho-ERK1/2 nuclear translocation. Cells were treated with the indicated concentrations of Sul-121 in the presence or absence of cigarette smoke extract (CSE) for 2 h. Cells were fixed for immunofluorescence of Nrf2, p65 or pERK. The corrected fluorescence was acquired by using ImageJ 1.48v. *: p<0.05, **: p<0.01, ***: p<0.001, One way ANOVA with Bonferroni post hoc test. ##: p<0.01, p=0.515, p=0.230, T test. Data represent as mean±SEM of n=4-5.

**Figure 3.** Sul-121 induced BTSM relaxation independent of the β-adrenoceptor. Bovine airway smooth muscle (BASM) strips were precontracted with methacholine (Mch, 1 x 10^{-4} M). After a 30 min incubation with/without the β-adrenoceptor antagonist propranolol (1 µM) the indicated concentrations of Sul-121 were added to build up a concentration dose response curve. Isoprenaline (ISO) served as the positive control. Data represent as mean±SEM of n=2.

**Conclusion**

Our data show that Sul-121 has both anti-inflammatory and (non-receptor mediated) bronchodilating properties in vitro and in vivo. Therefore, Sul-121 may represent a novel approach in the pharmacological treatment of COPD.