Clean-Cow: Reducing methane emission from ruminants

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The world population is growing constantly and as a consequence the related increase in the overall industrial production and in demand for food, including milk and beef products has created substantially more emission of greenhouse gases over time. The Paris COP-21 conference in December 2015 has prominently addressed this issue and agreed on climate change targets for every country to keep the overall temperature raise below 2°C. However, it became clear that for several regions these targets will not be reachable without taking the agricultural sector into account since the billions of animals raised by men e.g. ruminants (dairy cows and beef-cattle) are being now the main anthropogenic source of the greenhouse gas methane. Due to its higher global warming potential (28 times compared to CO_2) methane is the second largest contributor to climate change, however its shorter half-life (12 years compared to several hundred years for CO_2) makes it an attractive target to reach a fast impact in fighting global warming.

Here we present our research activities towards the development of a specific inhibitor for methane formation in ruminants. The presentation will cover the important steps of the compound development program starting by target identification and virtual screening followed by in-vitro screening assays and the results of animal feeding trials. In this way, we developed a feed solution that can be easily incorporated into current farm feeding practices, that according to peer reviewed studies reduces enteric methane emissions from cows (that are burped into the environment), by at least 30%.

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