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**Physiological model to investigate and prioritize targets for psoriasis**

E. Hussey<sup>2</sup>, J. Cote-Sierra<sup>2</sup>, H. Hofland<sup>2</sup>, V. Damian-lordache<sup>1</sup>, T. Wilde<sup>1</sup>, W. Chern<sup>2</sup>, C. Friedrich<sup>3</sup>, R. Baillie<sup>3</sup>

<sup>1</sup>GlaxoSmithKline Philadelphia, PA, <sup>2</sup>Stiefel Laboratories, Research Triangle Park, NC, <sup>3</sup>Rosa & Co, San Carlos, CA

Abstract: Physiological mechanistic modeling offers a tool to generate insight into disease interactions with biological and pharmacological targets. We undertook a model development exercise to enable decisions for early development target prioritization. As the first stage for a psoriasis mechanistic model, we developed a biological disease map and included mechanisms of action of current standard of care drugs. A model qualification method system documented the design, testing criteria, uncertainties, and other inputs. Literature data were used to design and annotate the disease map, which was critically reviewed by R&D scientists and disease experts. The disease map was used to evaluate drug targets in disease pathways, potential interactions, and relative contributions to efficacy potential, thus informing and enabling the selection and prioritization of drug development targets. Early model development allows us to identify data gaps and biological uncertainties which need further exploration. The disease map provided the foundation for consolidation of historical data and knowledge, and for ongoing development of a quantitative model to further evaluate pharmacodynamic endpoints and therapeutic potential.