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### **Applied Biology in Collaboration with Brown Researchers Announce the Discovery of a Possible Association Between the Genetic Cause of Hair Loss and Severity of COVID-19 Infection**

#### JOINT RESEARCH EFFORT POINTS TO POSSIBLE GENETIC VARIATION THAT PRE-DISPOSES COVID-19 PATIENTS TO DEVELOP SEVERE SYMPTOMS

Irvine, CA, April 1, 2020 — In a joint research effort studying the genetics of the androgen receptor in androgenetic alopecia, scientists discover a possible genetic variation that pre-disposes COVID-19 patients to develop severe symptoms. The team led by Andy Goren, MD Chief Medical Officer at Applied Biology and Carlos G. Wambier, MD, PhD Director of Cosmetic Research at the Department of Dermatology of the Alpert Medical School of Brown University and John McCoy, PhD Vice President of R&D at Applied Biology along with a team of collaborators from other institutions submitted their discovery to publication in the medical journal *Dermatologic Therapy*. The manuscript titled “WHAT DOES ANDROGENETIC ALOPECIA HAVE TO DO WITH COVID-19? AN INSIGHT INTO A POTENTIAL NEW THERAPY” (DOI: 10.1111/dth.13365) elucidates the possible role of androgens in controlling the infectiveness of SARS-CoV-2 in human lung cells. According to Dr. Wambier: “we believe that androgens are required for the expression of the serine protease TMPRSS2. This proteolytic priming of the spikes of the coronavirus is the first step required for binding to the ACE2 receptor in cells. Male hormones might also affect ACE2 receptor expression in lung cells. To the best of our knowledge these are required for the novel coronavirus to infect humans.” According to Dr. Goren: “men and women are known to have different levels of androgens as well as androgen receptor expression patterns which may explain the differential mortality rate between the genders.” The team is now exploring a diagnostic test to identify COVID-19 patients at high risk for developing severe symptoms or mortality. In addition, the group is embarking on a clinical study to explore the use of anti-androgen therapy in COVID-19 patients.

### ABOUT APPLIED BIOLOGY

Founded in 2002, Applied Biology, Inc. ([www.appliedbiology.com](http://www.appliedbiology.com)), headquartered in Irvine, California, is a biotechnology company specializing in hair and skin science. Applied Biology develops breakthrough drugs and medical devices for the treatment of androgen mediated dermatological conditions. Applied Biology's R&D pipeline includes a topically applied prophylactic treatment for chemotherapy induced alopecia; a novel diagnostic device that can aid dermatologists in identifying non-responders to topical minoxidil; an adjuvant therapy for non-responders to topical minoxidil; and a novel therapy for female pattern hair loss.