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Press release

Research on social behavior and health

DFG extends funding for research group "Sociality and Primate Health" with approximately 2.5 million euros

Göttingen, 20 November 2017. **How does social behavior affect health? This is the question that the scientists in the DFG funded research group with a substantial participation of scientists of the German Primate Center (DPZ) – Leibniz Institute for Primate Research, intend to find an answer to. Behavioral researchers, veterinarians and molecular biologists from Göttingen, Berlin and Leipzig are investigating the effect of social stress, friendships or other aspects of group life on the health and susceptibility of pathogens in wild lemurs, macaques and chimpanzees. Peter Kappeler, head of the Behavioral Ecology and Sociobiology Unit at the DPZ, is also the initiator and spokesperson of the research group. The German Research Foundation (DFG) has extended funding for the project for three more years with approximately 2.5 million euros.**

Primates are social animals. During the course of evolution, they have developed different forms of coexistence that include pair bonding, harem groups, mixed male and female groups as well as family structures. The different forms of group life benefit the individuals. These benefits include; more efficient ways to acquire food, protection from predators, better access to sexual partners and support in raising the young. The disadvantages of cohabitation include social stress, competition for food and the increased risk of the transmission of pathogens and parasites. Both the positive and the negative aspects of the group affect the health and the success of the individual's reproduction. However, the physiological mechanisms that mediate these effects have rarely been studied.

“Our research group will examine the health effects of social variables such as group size, dominance rank, cooperation or mating strategies," says behavioral scientist Peter Kappeler. “In addition, we will investigate various indicators such as stress hormones, parasite infestation or the composition of the intestinal flora and then put them in relation to the social factors.” Behavioral ecologists, veterinarians and molecular biologists cooperated in this interdisciplinary project. "The close and multifaceted cooperation allows us to not only examine a certain primate species, but allows a comparative study of lemurs, macaques and great apes," says Peter Kappeler. "A further advantage is the cooperation with the micro- and infection biologists. This allows us an accurate characterization of potential pathogens and symbiotic bacterial communities in different primate species and a comparison of the associated physiological responses. "
Five of the seven research projects are stationed at the DPZ or are processed with DPZ participation. Besides Peter Kappeler and Claudia Fichtel from the Behavioral Ecology and Sociobiology Unit, Christian Roos, from the Primate Genetics Laboratory, as well as Julia Ostner

and Oliver Schülke from the Research Group Social Evolution in Primates, are also involved in the project. "Within the framework of our five projects, our focus is on variable group sizes of Verreaux's sifaka (*Propithecus verrauxi*) in Madagascar, since they influence their usage of space, feeding behavior, parasite and stress," says Peter Kappeler. "This results in long-term consequences for the reproductive success of the animals. In addition, we will examine how various factors such as age, kinship, food, social interactions, physiological stress and parasitic infestation affect the composition of the intestinal flora of red-fronted lemurs (*Eulemur rufifrons*). This has a decisive influence on the immune system of the animals and thus on their health." In the third subproject, the diversity and structure of parasites and intestinal microorganisms of 20 primate species with different social systems will be characterized. Researchers hope to gain new insights into the long-term effects of sociality on the relationship of various intestinal bacteria from an evolutionary perspective. In two other projects, the scientists are investigating the effects of aging and prenatal stress on the social behavior and health of Assamese macaques *(Macaca assamensis)* in Thailand.

In addition to the DPZ, the University of Göttingen, the Robert Koch Institute in Berlin and the Max Planck Institute for Evolutionary Anthropology in Leipzig are involved in the DFG research group. Other sub-projects address the influence of group sizes on the composition of pathogens and other bacteria, as well as studies on social stress management strategies and stress hormone levels in common chimpanzee *(Pan troglodytes)*.

Contact and suggestion for editors

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Printable pictures are available in our Media library. The press release with additional information can also be found on our website. We kindly request a specimen copy in case of publication.

The German Primate Center (DPZ) – Leibniz Institute for Primate Research conducts biological and biomedical research on and with primates in the fields of infection research, neuroscience and primate biology. The DPZ maintains four field stations in the tropics and is the reference and service center for all aspects of primate research. The DPZ is one of 91 research and infrastructure facilities of the Leibniz Association.