



Leibniz-Institut für Zoo-
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Media release

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Reproduction and stem cell researchers set up a rescue plan for Northern White Rhino

International scientists set up a rescue plan for the worldwide last three northern white rhinos (*Ceratotherium simum cottoni*). The goal is to use the remaining three rhinos and tissue samples from already dead individuals to multiply them into a viable self-sustaining population. For this purpose scientists apply recent findings in reproduction and stem cell research.

Under the direction of the Leibniz Institute for Zoo and Wildlife Research (IZW), San Diego Zoo Global (USA), Tiergarten Schönbrunn (Austria) and ZOO Dvůr Králové (Czech Republic) experts developed a rescue plan for the northern white rhino.

The plan is to reproduce northern white rhinos using gametes of the last living specimens as well as using induced pluripotent stem cells (iPS cells). The iPS cells can be gained from rhino somatic cells, for example from the skin. Subsequently, in future it might be possible to specifically mature the iPS cells into neurons, heart muscle cells or even gametes. If everything goes according to plan, *in vitro* fertilised gametes can be introduced into surrogate mothers and a fertile northern white rhinos will be produced. This first use of stem cell technology in animal conservation is ground breaking. A success offers new possibilities in the fight against species extinction caused by humans.

At the expert meeting “Conservation by Cellular Technologies“, which took place from 3rd to 6th December in Vienna, international scientists from four continents came to the conclusion that the northern white rhino can only be rescued by using cellular techniques. One of the participants in the meeting, the Japanese stem cell scientist Katsuhiko Hayashi (Kyushu University), has already grown mice out of simple skin cells. An international team of researchers is now working on transferring this model of success to northern white rhinos.

Only three individuals remain after the death of Nola, a 41-years old northern white rhinoceros at the San Diego Zoo Safari Park on 22nd November, and Nabiré, a 32-years old female at ZOO Dvůr Králové on 27th July, 2015. The last three individuals, a male and two females, presently live at Ol Pejeta Conservancy in Kenya. Age and reproductive challenges make the possibility of natural reproduction unlikely but the DNA of a dozen individual northern white rhinos has been preserved in genetic banks in Berlin and San Diego. The experts are using this genetic information to bring back the species.

The first studies with the remaining cells of the northern white rhinos have already begun. The complete rescue and research plan will be published as a status report (white paper) next year.

Photo:

I would suggest to use the image of Nabiré by Joel Sartore I sent prior to the meeting.

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