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Genetics
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News Article Review

In the Virginian Pilot, there was an article that discussed the first pig heart transplant into a human and how the patient passed away two months after receiving the transplant. It is well known that transplants of this nature, animal to human, are not very successful and there was a high possibility of this not having the outcome desired. The human body easily rejects organs from animals as they have different genetics that trigger the human body to not be accepting of it. In order for scientists to perform this transplant, they had to edit the genes in the pig's heart to remove genes that trigger "hyper-fast rejection" and also had to insert human genes to help the human body accept the transplant. (Johnson, C., Neergaard, L., 2022)

The patient's body seemed to accept the transplant successfully and was working towards recovery, but unfortunately a couple of months after the transplant, the patient passed away. The patient lived longer than the last xenotransplantation that was performed in 1984. In 1984 a baby received a transplant of a baboon's heart and that patient only lived for 21 days. With this gene edited pig heart transplant, it shows that with the gene editing, it allowed for the patient's body to be more accepting of it and could allow for more successful transplants later. There are many patients who are in need of transplants who cannot get them because there are not enough donors or matches to perform a successful transplant. Xenotransplantation is a hopeful method for transplants to help the many patients in need.

Scientists have learned that a genetically modified animal organ transplanted in a human can perform its functions successfully and is hopeful of being able to do other organ transplants as well. This xenotransplantation is a step forward in genetics and science to help all of the thousands of patients in need of organ transplants. Although the patient only survived for a couple of months, it is slowly making progress towards success.

In the article (Geng, Q. 2022), it agrees with the Virginia news article that this genetically modified organ transplant was a step towards success. The most difficult obstacle was getting the human body to accept the organ transplant and not reject it, and that was successfully achieved for a short period of time. There were actually 10 genetic modifications that were applied to the pig heart: 6 human genes were inserted, 1 growth gene was inserted, and 3 immune rejection related genes. Manipulating the genes in an animal organ that is to be transplanted into a human is one of the most important factors in order for the body not to reject it. There were also some drugs that were used in the transplant to help fight the rejection of it, and the long-lasting effects of those drugs are still unknown. Scientists believe that pig organs will be the greatest relief for human transplants because their organs shape and size closely resemble that in a human and they are easy to obtain. (Geng, Q. 2022) With the short-term success of this genetically modified pig heart transplant, scientists hope to see growth in pig organ transplants to help reduce the number of humans needing transplants.

This news article relates to genetics because scientists had to genetically modify a pig organ in order for it to have a chance of being successfully transplanted into a human and not rejected by a human body. Human genes also had to be inserted into the pig organ and these modifications allowed for short term success. It has been the most successful one yet, and scientists hope this will allow for more success with more research.

References

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