

Chimeras and Pig Organ Transplants

My interest in pharmaceuticals and biotechnology has been with me for a long time. Chimeras are grouping of cells from two or more organisms. They have been developed by researchers with the goal of using them as possible organs for transplant. Last week, **USA Today** reported that a person received a heart from a genetically modified pig. Hence, my curiosity about chimeras has peaked.

In order for readers and me to better understand this topic, some definitions and statistics are in order. Garrett Dunlap's **USA Today** article, "The End of the Waitlist: how chimeras could solve the organ transplant problem", defines chimeras as follows. "In ancient Greek mythology a Chimera was a mythological beast consisting of parts from different animals, such as the head of a lion and the body of a goat..... In the medical world a chimera refers to any living thing that is composed of cells from two or more organisms."

Dunlap's reason for writing the article is to raise awareness and chronicle advances in the study of chimeras. He writes, "Every ten minutes, another person joins the list of hundreds of thousands waiting for organ transplants.", and highlights long waiting periods for those who currently need organ transplants. A strong case is made for a need to change how organ transplants are done in order to save more patients' lives.

Fortunately, researchers have made big gains in developing organs from animals particularly pigs for human use. Karen Weintraub's article "Pig Heart Transplant: Dave Bennett recovering, exceeding expectations" describes how Dave Bennett is the first person to receive a heart from a genetically modified pig. Weintraub writes "Dave Bennett the Maryland man who received the first heart transplant from a genetically modified pig last week continued to recover well his doctors said late Wednesday." Furthermore, Weintraub quotes the doctors as saying Bennett's new organ is "... like a rock star." "It seems to be reasonably happy in its new host ... it has more than exceeded our expectations." Additionally Bennett is "breathing on his own and speaking with a quiet voice." Even better, doctors took Bennett out of a machine that helped his heart and lungs work because his heart was beating well. Bennett's progress is good news for many people who are waiting for organ transplants. The author specifies that "more than 100 thousand Americans are on a waitlist for an organ transplant and about 6 thousand die every year while waiting. More like Bennett never make the list at all." Weintraub explains that Bennett did not originally qualify for a human heart at first. He did not take all of his medications and missed appointments. The fact that approximately 100 thousand Americans are on a waiting list and six thousand die while waiting further clarifies that the status quo is not sustainable. The concept of giving someone a gene edited heart is novel. Weintraub further explains that ten of the pig's genes were modified. If these transplants continue working many more lives can be saved Furthermore, Bennett needs to work hard by taking his medications and follow doctors' orders.

Finally, one can only hope that there are more transplants for other organs that are based on chimeras.