Feature Article: Fetal Cells and Vaccines — Common Questions Answered

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In the process of learning more about vaccines, parents — and some healthcare providers — are sometimes surprised to find out that fetal cells are used during the manufacturing process for a few vaccines. This realization can be shocking, particularly as society struggles with the morality of abortion and the use of fetal cells for scientific research.

The cells were isolated from two elective abortions performed in the 1960s. This article addresses some of the most common questions and misconceptions related to how and why some vaccines are made using these controversial cells.

Which vaccines are made using fetal cells?

The vaccines made using fetal cells include:

- Rubella (the "R" in MMR vaccine)
- Chickenpox, also called varicella
- Hepatitis A
- Shingles, sometimes referred to as zoster — one version, called Zostavax®
- Rabies — one version, called Imovax®

FACT CHECK :
In the U.S., as of June 2018, according to the CDC, there are 13 manufactured vaccines that contain human fetal cells (MRC-5 and WI-38). Please see this link https://www.soundchoice.org/wp-content/uploads/USVaccineExcipients.pdf?fbclid=IwAR1f5AM6MxuKgmrWtaazXDMB9pm9HVaScho7ekeUmRYQhbTikr_0TAjwYDw.
The vaccines that contain those fetal cells are highlighted.

Do vaccines contain parts of fetuses or fetal cells?

In order to grow viruses in the lab, cells need to be made into single cell suspensions, meaning they can no longer be grouped together in the form of tissues or organs. As such, vaccines do not contain "parts of fetuses."

Vaccines also do not contain fetal cells. Once the vaccine viruses are grown in the cells, the next step in the manufacturing process is to purify them, removing other materials that remain from the growth, or replication, phase. If you have ever picked blueberries, you can think of this part of the process as similar. While you are picking, you might get some of the blueberry plant — stems, leaves and even branches — in your berry bucket, but to use the berries, you remove all of those things, so your pie contains only the blueberries (and any other ingredients you choose to add).

FACT CHECK:
This is absolutely false. A vaccine is a vial that contains a virus, a liquid buffer and contaminants from the cell line that was used to manufacture the virus. Some vaccines also contain preservatives and adjuvants, such as thimerosal and aluminum.

Take Varivax, chickenpox vaccine, for example. One can find all the ingredients in the official package insert. Below is the snip. The full package insert link is https://www.merck.com/product/usa/pi_circulars/v/varivax/varivax_pi.pdf.

11 DESCRIPTION

VARIVAX [Varicella Virus Vaccine Live] is a preparation of the Oka/Merck strain of live, attenuated varicella virus. The virus was initially obtained from a child with wild-type varicella, then introduced into human embryonic lung cell cultures, adapted to and propagated in embryonic guinea pig cell cultures and finally propagated in human diploid cell cultures (WI-38). Further passage of the virus for varicella vaccine was performed at Merck Research Laboratories (MRL) in human diploid cell cultures (MRC-5) that were

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free of adventitious agents. This live, attenuated varicella vaccine is a lyophilized preparation containing sucrose, phosphate, glutamate, and processed gelatin as stabilizers.

VARIVAX, when reconstituted as directed, is a sterile preparation for subcutaneous injection. Each approximately 0.5-mL dose contains a minimum of 1350 plaque-forming units (PFU) of Oka/Merck varicella virus when reconstituted and stored at room temperature for a maximum of 30 minutes. Each 0.5-mL dose also contains approximately 25 mg of sucrose, 12.5 mg hydrolyzed gelatin, 3.2 mg of sodium chloride, 0.5 mg of monosodium L-glutamate, 0.45 mg of sodium phosphate dibasic, 0.08 mg of potassium phosphate monobasic, and 0.08 mg of potassium chloride. The product also contains residual components of MRC-5 cells including DNA and protein and trace quantities of sodium phosphate monobasic, EDTA, neomycin and fetal bovine serum. The product contains no preservative.

This purification part of the process is important for two reasons. The first, and perhaps most obvious, is the financial reason. From a business perspective, an efficient process that results in the purest possible product is the goal. However, as consumers, the second, and more important, reason matters more. A pure product will not introduce unnecessary components that could trigger immune responses or affect us in other ways.

FACT CHECK:
FALSE! The vaccines are contaminated with aborted fetal DNA, cellular debris and retroviral fragments, and they have not done any safety studies to inspect this matter.

Why are the vaccines contaminated? The contaminants are present because the manufacturing processes cannot eliminate them ECONOMICALLY from the final product. In the basics of manufacturing, there is a trade-off between the amount of product one can make and how pure that product can be. It is so difficult, in fact, for the manufacturers to remove the cell line contaminants in vaccines that the WHO and FDA have relaxed their limitation guidelines on contaminants twice and 100 fold. FDA and WHO now recommend residual cell line DNA levels be below 10 ng per vaccine dose.

Proof that the content of human fetal DNA in several vaccines is above WHO/FDA recommended limits:

- The Chickenpox vaccine available in the U.S. is contaminated with greater than 2 ug fetal MRC-5 DNA. http://wayback.archive-it.org/7993/20170723031730/https://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM142826.pdf from Merck's application for licensing documents the very high 2 microgram (ug) fetal DNA contaminants in the chickenpox vaccine on page 2 paragraph 2.
- The monovalent rubella vaccine (discontinued in 2011) was manufactured using the WI-38 and contaminated with greater than 150ng cell substrate DNA per dose, fragmented to approximately 215 base pairs in length. 150 nanograms of DNA is equivalent to the total amount of DNA in over 22,000 cells. Additionally, this vaccine was contaminated with fragments of the HERVK retrovirus, a contaminant in some of the chickenpox and measles/mumps/rubella vaccines that has been known to be associated with several autoimmune diseases (J Virol. 2010 Jun;84(12):6033-40. Viral nucleic acids in live-attenuated vaccines: detection of minority variants and an adventitious virus. Victoria JG[1], Wang C, Jones MS, Jaing C, McLoughlin K, Gardner S, Delwart EL. Viral nucleic acids in live-attenuated vaccines: detection of minority variants and an adventitious virus. Blood Systems Research Institute, San Francisco, California 94118, USA.)
- Hepatitis A vaccine that is manufactured using MRC-5 is contaminated with more than 300 nanograms cell substrate DNA per vaccine dose. See our published paper http://www.soundchoice.org/wp-content/uploads/Jarzyna-InsertionalMutagenesisAndAutoimmunity.pdf

Those amounts of fetal DNA in a baby or child's blood stream are MORE than enough to activate toll-like receptor 9 and cause massive cytokine release and antibody formation.

Why are fetal cells used to make some vaccines?

Viruses reproduce in cells, so to grow viruses for a vaccine, one of the necessary "tools" is a type of cell in which the virus will grow. Viruses will not grow in just any cell type, so one of the first things a scientist needs to do is to figure out what cells the virus will infect in the lab. Because viruses infect people, human cells are a good place to start checking.

FACT CHECK:
FALSE! They did not start looking at human cells to grow viruses. They started to grow virus in the animal cells or animal cell lines. For example, varicella (chickenpox) grows readily in guinea pig cells (Appl Microbiol. 1968 Jan;16(1):160-2. Production of specific varicella antiserum. Kissling RE, Casey HL, Palmer EL.), and rubella grows readily in primary rabbit kidney cells (New Japanese rubella vaccine: comparative trials. Best JM, Banatvala JE, Bowen JM. Br Med J. 1974 Jul 27;3(5925):221-4). In the case of chickenpox, in 1968, scientists knew chickenpox grew well in guinea pig cells, and it was not until 1970 that scientists first started to develop a chickenpox vaccine. It was a choice to use the MRC-5 human fetal cell line, instead of creating a guinea pig cell line. Those scientists chose, mostly for convenience, to use a human fetal cell line instead of making and infecting a guinea pig cell line.
In Jan 1979, the FDA approved the rubella vaccine that switched manufacturing from animal-based to human fetal cell line WI-38-based. In November 1987, a human fetal cell line manufactured polio vaccine was FDA approved, but was discontinued in the US after 1991. (http://mv3462p2bnv2ptxqp33ikj2j-wpengine.netdna-ssl.com/wp-content/uploads/UNITED-STATES.pdf)
All vaccines are, have been, or can be produced using non-human fetal cell lines. For example, a rubella virus used in Japan was isolated from a throat swab from an 8-year-old infected girl and is manufactured using rabbit kidney cells. No human fetuses are needed. Hepatitis A vaccine "Aimmugen" produced in Japan is manufactured in a monkey cell line.

The most important benefit offered by using fetal cells was that they were isolated from the sterile environment of the womb. This meant the cells would not be infected with other viruses, and the vaccine produced in these cells would not inadvertently introduce any other viruses.

To find out more about this historic decision, check out the video, *Stanley Plotkin: Pioneering the use of fetal cells to make rubella vaccine*.

FACT CHECK:
The only supposed benefit of using fetal cell or cell lines is for the manufacturers and pharmaceutical companies. It is convenient and they believed more economical to grow viruses in cell lines instead of using chicken eggs (https://www.seattletimes.com/seattle-news/health/h1n1-vaccine-production-method-faulted/). These perceived economic benefits, however, have been proven wrong.
Additionally, both the human fetal cell lines used for virus manufacture have been shown to be contaminated with retroviruses which are associated with the epidemic of chronic diseases our children now live with (*Viral nucleic acids in live-attenuated vaccines: detection of minority variants and an adventitious virus. Victoria JG, Wang C, Jones MS, Jaing C, McLoughlin K, Gardner S, Delwart EL. 12, Jun 2010, J Virol. 2010, Vol. 84, pp. 6033-6040 & Mikovits JA, Lombardi VC, Pfost MA, Hagen KS, Ruscetti FW. Detection of an infectious retrovirus, XMRV, in blood cells of patients with chronic fatigue syndrome. Virulence. 2010;1(5):386-390. doi:10.4161/viru.1.5.12486).*

If cows cannot be safely vaccinated with viruses grown in cow cells, how can we suppose that humans could be safely vaccinated with viruses grown in human cells? (Expert Rev Vaccines. 2017 Jan;16(1):65-71. Epub 2016 Oct 31. The risks of using allogeneic cell lines for vaccine production: the example of Bovine Neonatal Pancytopenia. Benedictus L[1,2], Bell CR[3].)

Make sure to watch this video of Stanley Plotkin's testimony in court where he admits he used 76 fetuses in his research to make a rubella vaccine: https://www.youtube.com/watch?v=NACBHtFMllA&feature=youtu.be&t=88&fbclid=IwAR2xQok0Ra3OhsoONiRfEPug4xmDKg-V90ZmQuB9QTZrQMmSB4qToVbpFK4

The public needs to know that using human fetal cell lines is a choice, not a necessity.

How can cells from the 1960s still be used today?

Cells grown in a laboratory setting are provided with an environment conducive to replication. As they reproduce and fill the container in which they are grown, researchers care for them by putting them in new containers and giving them additional nutrients to enable continued growth. As a result, the cells are able to replicate exponentially. Periodically, a portion of the cells will be frozen in liquid nitrogen for long-term storage. The extremely cold temperatures of liquid nitrogen freezers, around -200° C, cause biological activity to cease without killing the cells. Decades later, the cells, if thawed and provided with the appropriate nutrients and environment, will begin to grow again. As the cells grow, the newly produced cells can also be frozen, and the process extended again.

To read more about how this process is done in the laboratory, check out the article about Dr. Plotkin's work on the Hilleman Film website.

Knowing the risks of vaccines contaminated with human fetal cell DNA fragment, we should ask why do we still use cells from the 1960s now instead of switching back to growing viruses in animal cells or animal cell lines, or even better, introducing something new and innovative in the production of vaccines.

Merck's MMR II vaccine (as well as the chickenpox, Pentacel, and all Hep-A containing vaccines) is manufactured using human fetal cell lines and is heavily contaminated with human fetal DNA from the production process. Levels in our children can reach up to 5 ng/ml after vaccination, depending on the age, weight and blood volume of the child. That level is known to activate Toll-like receptor 9 (TLR9), which can cause autoimmune attacks.

To illustrate the autoimmune capability of very small amounts of fetal DNA, consider this: labor is triggered by fetal DNA from the baby that builds up in the mother's bloodstream, triggering a massive immune rejection of the baby. This is labor.

It works like this: fetal DNA fragments[i] from a baby with about 300 base pairs in length are found in a pregnant mother's serum. When they reach between 0.46- 5.08 ng/mL in serum, they trigger labor via the TLR9 mechanism[ii]. The corresponding blood levels are 0.22 ng/ml and 3.12 ng/ml. The fetal DNA levels in a child after being injected with fetal-manufactured vaccines reach the same level that triggers autoimmune rejection of baby by mother.

Anyone who says that the fetal DNA contaminating our vaccines is harmless either does not know anything about immunity and Toll- like receptors or they are not telling the truth.

If fetal DNA can trigger labor (a naturally desired autoimmune reaction), then those same levels in vaccines can trigger autoimmunity in a child. Fragmented fetal DNA contained in vaccines is of similar size, ~215 base pairs.[iii]

This is direct biological evidence that fetal DNA contaminants in vaccines are not in low innocuous amounts. They are a very strong proinflammatory trigger.

Lo et al. Am J Hum Genet. 1998 Apr;62(4):768-75
Enninga et al. Front Immunol. 2015 Aug 26;6:424
Deisher et al. Issues Law Med. 2015 Spring;30(1):47-70

Do more abortions need to be done?

No. Because the cells isolated in the 1960s have been cared for as described above, vaccine manufacturers do not need to seek new cell sources.

The problem with accepting the use of aborted fetuses for biomedical uses, even once, is that the door is opened to justify recurring and ghastly uses based on the fact that the practice was accepted a few times for vaccine production. Children of God for Life has recently exposed NeoCutis and their use of aborted fetal cell lines to produce the 'processed skin proteins' used in 6 of their products. While I have heard women justify or minimize abortion by the possibility that donating their aborted baby for biomedical research might help someone else, I cannot imagine that women considering abortion would console themselves with the thought that their aborted baby might be minced and processed to develop a cell line to reduce wrinkles on someone else's face. The thought of creams containing proteins from an aborted fetal cell line being rubbed and absorbed into someone's face should make most people nauseous.

NeoCutis, in a statement sent to The Washington Times, justifies using an aborted fetal cell line to produce proteins for their skin products on the principle that vaccines have been and are produced using aborted fetal cell lines (http://www.neocutis.com/categories.php?catid=91). What NeoCutis fails to mention in their justification is that ethical alternative vaccines for polio are available and widely used, and therefore, we had no need to use aborted fetuses to eradicate polio. In the United States, NeoCutis cosmetic products containing processed skin proteins produced using aborted fetal cell lines can be purchased ONLY through a prescription from a health care professional. Does that sound like a safe cream to rub into your face? (http://www.neocutis.com/categories.php?catid=73).

My religion is against abortions, so I don't want to get these vaccines. Are alternatives available?

Alternative versions of a rabies and shingles vaccine are available; however, that is not the case for the rubella, chickenpox and hepatitis A vaccines.

Religious leaders from the major religions, including Catholicism, have evaluated the use of these cells in making vaccines and determined that it is not sinful to accept vaccines made in this manner.

To read more about religious positions related to vaccines, including the use of fetal cells, visit the Immunization Action Coalition's "Religious Concerns" webpage.

FACT CHECK:
A list of available alternatives can be found at www.soundchoice.org - vaccine card http://mv3462p2bnv2ptxqp33ikj2j-wpengine.netdna-ssl.com/wp-content/uploads/vaccineListOrigFormat-1.pdf.

FALSE! Pope St. John Paul II in Evangelium vitae stated that "the use of human embryos or fetuses as an object of experimentation constitutes a crime against their dignity as human beings who have a right to the same respect owed to a child once born, just as to every person." In 2008, the Vatican Congregation for the Doctrine of the Faith published Dignitas personae, which provides important guidance and moral instruction on medical research and drugs manufactured using human fetal cell lines.

According to Dignitas personae, scientists of good conscience should avoid using all morally controversial cell lines. Furthermore, the document states that scientists of conscience should find alternative cell lines or discontinue any research in areas that use these cell lines.