Baby cells in covid-19 vaccine development

Cell lines derived from the cells of aborted babies were used in the development of every major COVID-19 VACCINE.

Pfizer/BioNTech, Moderna, AstraZeneca, Janssen / Johnson & Johnson and **Novavax** all used these cells in the development of their vaccines..

The following is a detailed study of the **scientific literature** available to the public regarding the use of fetal cell lines in the development of the above mentioned COVID-19 vaccines.

The **HEK 293 (Human Embryonic Kidney)** is the most commonly mentioned cell line in the scientific literature about the development of vaccines for COVID-19.

HEK 293 and other cell lines are 'kept alive' in **'Celbanks'**, also called **'Culture Collections'**. Companies and universities can source their cells from here.

The European Collection of Authenticated Cell Cultures (ECACC) is one of the four Culture Collections of **Public Health England, part of the UK government**.

https://www.culturecollections.org.uk › about-us › ecacc

ECACC | Culture Collections

The **European Collection of** Authenticated **Cell Cultures** (ECACC) is one of four **Culture Collections of** Public Health England. We supply authenticated and quality controlled **cell** lines, nucleic acids and induced Pluripotent Stem **Cells** (iPSCs).

https://www.culturecollections.org.uk/about-us/ecacc/ (consulted 12-11-2024)

Pfizer/BioNTech

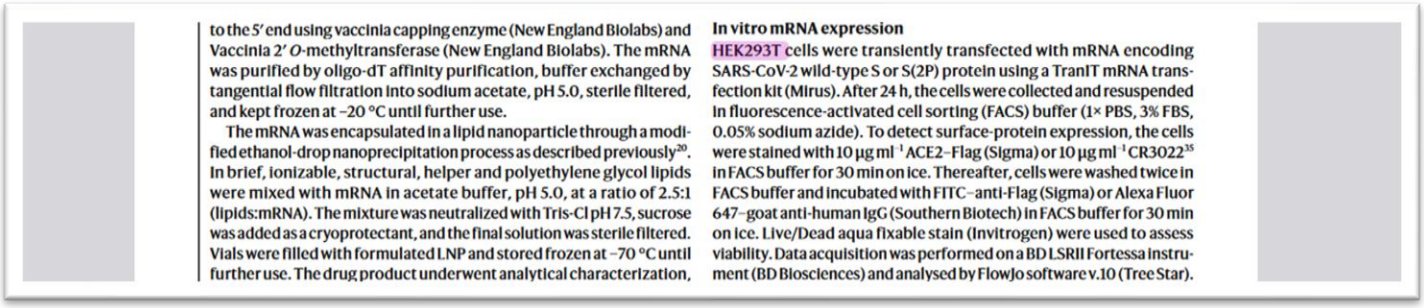
The **HEK 293** cell line was used in the testing of the vaccine when the vaccine was tested in apes (non-human primates). You can read this in the following test report:

269 **Cell culture.**
270 Human embryonic kidney (HEK)293T/17 and Vero 76 cells (both ATCC) were cultured in
271 Dulbecco's modified Eagle's medium (DMEM) with GlutaMAX™ (Gibco) supplemented with
272 10% fetal bovine serum (FBS [Sigma-Aldrich]). Cell lines were tested for mycoplasma
273 contamination after receipt, before expansion and cryopreservation. For studies including NHP

A prefusion SARS-CoV-2 spike RNA vaccine is highly immunogenic and prevents lung infection in non-human primates, Vogel et al., posted on bioRxiv.org, September 08 2020.
https://www.biorxiv.org/content/10.1101/2020.09.08.280818v1 (consulted 10-11-2024)
https://www.biorxiv.org/content/10.1101/2020.09.08.280818v1.full.pdf (consulted 10-11-2024)
(The "**BNT162b2**" vaccine candidate is the code name for the Pfizer/BioNTech vaccine.)

Moderna

The **HEK 293** cell line was used in the testing of the vaccine on mice. You can read this in the following test report:



to the 5′ end using vaccinia capping enzyme (New England Biolabs) and Vaccinia 2′ *O*-methyltransferase (New England Biolabs). The mRNA was purified by oligo-dT affinity purification, buffer exchanged by tangential flow filtration into sodium acetate, pH 5.0, sterile filtered, and kept frozen at −20 °C until further use.

The mRNA was encapsulated in a lipid nanoparticle through a modified ethanol-drop nanoprecipitation process as described previously[20]. In brief, ionizable, structural, helper and polyethylene glycol lipids were mixed with mRNA in acetate buffer, pH 5.0, at a ratio of 2.5:1 (lipids:mRNA). The mixture was neutralized with Tris-Cl pH 7.5, sucrose was added as a cryoprotectant, and the final solution was sterile filtered. Vials were filled with formulated LNP and stored frozen at −70 °C until further use. The drug product underwent analytical characterization,

In vitro mRNA expression

HEK293T cells were transiently transfected with mRNA encoding SARS-CoV-2 wild-type S or S(2P) protein using a TranIT mRNA transfection kit (Mirus). After 24 h, the cells were collected and resuspended in fluorescence-activated cell sorting (FACS) buffer (1× PBS, 3% FBS, 0.05% sodium azide). To detect surface-protein expression, the cells were stained with 10 μg ml^{-1} ACE2–Flag (Sigma) or 10 μg ml^{-1} CR3022[35] in FACS buffer for 30 min on ice. Thereafter, cells were washed twice in FACS buffer and incubated with FITC–anti-Flag (Sigma) or Alexa Fluor 647–goat anti-human IgG (Southern Biotech) in FACS buffer for 30 min on ice. Live/Dead aqua fixable stain (Invitrogen) were used to assess viability. Data acquisition was performed on a BD LSRII Fortessa instrument (BD Biosciences) and analysed by FlowJo software v.10 (Tree Star).

SARS-CoV-2 mRNA vaccine design enabled by prototype pathogen preparedness, Corbett et al., published by Nature.com, 05 August 2020.
https://www.nature.com/articles/s41586-020-2622-0 (consulted 10-11-2024)
https://www.nature.com/articles/s41586-020-2622-0.pdf (consulted 10-11-2024)

AstraZeneca

According to the product information of the AstraZeneca vaccine, the vaccine is produced in “genetically modified **human embryonic kidney** **(HEK) 293 cells’**’. Also known as **HEK 293**.

"COVID-19 Vaccine AstraZeneca contains genetically modified organisms (GMOs). Any unused vaccine or waste material should be disposed of in compliance with the local guidance for genetically modified organisms or biohazardous waste. Spills should be disinfected using agents with activity against adenovirus.

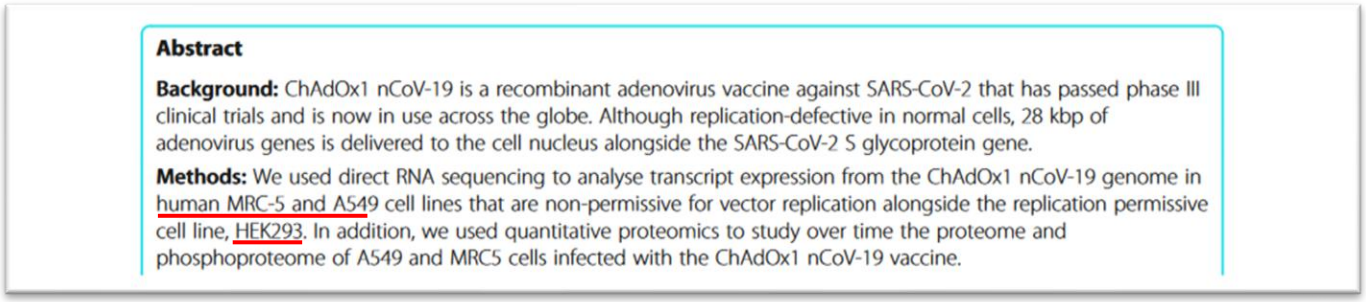
6. Contents of the pack and other information
What COVID-19 Vaccine AstraZeneca contains
One dose (0.5 ml) contains:
Chimpanzee Adenovirus encoding the SARS-CoV-2 Spike glycoprotein ChAdOx1-S *, not less than 2.5 × 108 infectious units
*Produced **in genetically modified human embryonic kidney** **(HEK) 293 cells** and by recombinant DNA technology.

This product contains **genetically modified organisms (GMOs)**."

Website of the European Medicines Agency (consulted 14-11-2024) see product information about the AstraZeneca vaccine p29 https://www.ema.europa.eu/en/documents/product-information/covid-19-vaccine-astrazeneca-product-information-approved-chmp-29-january-2021-pending-endorsement-european-commission_en.pdf

The **MRC-5** cell line is also mentioned to have been used in testing the vaccine. You can read this in the following test report of which we took a screenshot.

(“**ChAdOx1**” is the code name for the AstraZeneca vaccine candidate.)



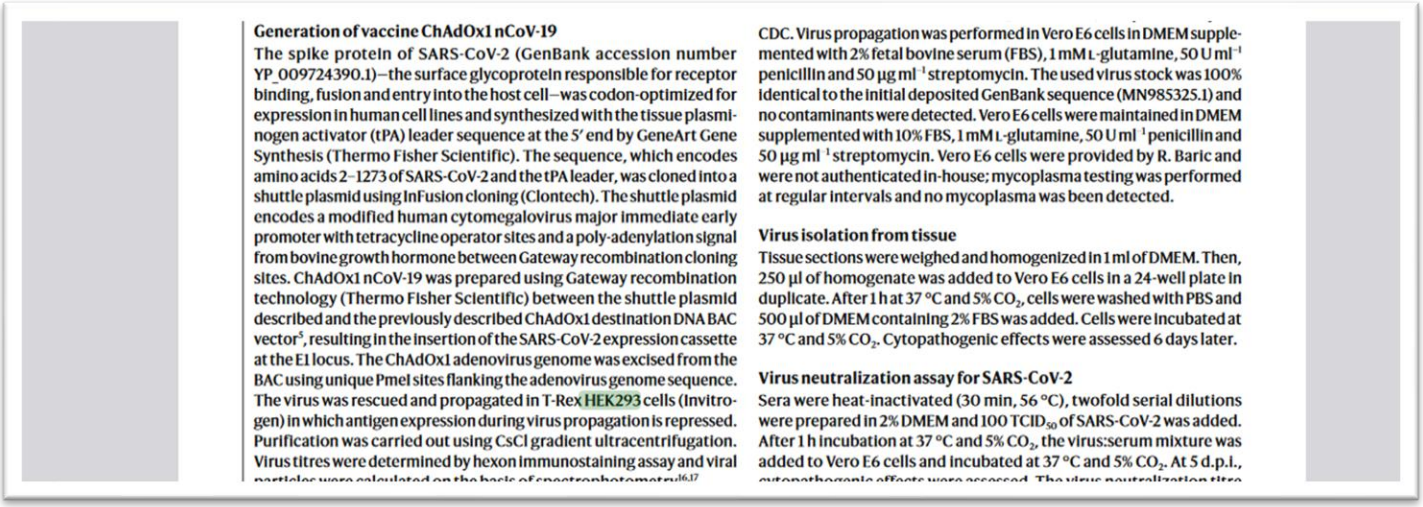
Abstract

Background: ChAdOx1 nCoV-19 is a recombinant adenovirus vaccine against SARS-CoV-2 that has passed phase III clinical trials and is now in use across the globe. Although replication-defective in normal cells, 28 kbp of adenovirus genes is delivered to the cell nucleus alongside the SARS-CoV-2 S glycoprotein gene.

Methods: We used direct RNA sequencing to analyse transcript expression from the ChAdOx1 nCoV-19 genome in human MRC-5 and A549 cell lines that are non-permissive for vector replication alongside the replication permissive cell line, HEK293. In addition, we used quantitative proteomics to study over time the proteome and phosphoproteome of A549 and MRC5 cells infected with the ChAdOx1 nCoV-19 vaccine.

SARS-CoV-2 candidate vaccine ChAdOx1 nCoV-19 infection of human cell lines reveals a normal low range of viral backbone gene expression alongside very high levels of SARS-CoV-2 S glycoprotein expression, Almuqrin et al., published by researchsquare.com, 20 October 2020 and updated 15 March 2021.
https://www.researchsquare.com/article/rs-94837/v1 (consulted 10-11-2024)
https://genomemedicine.biomedcentral.com/counter/pdf/10.1186/s13073-021-00859-1.pdf (consulted 10-11-2024)

From another study on the AstraZeneca vaccine it appears that the **HEK 293** cell line was apparently used to test the vaccine, in this case on apes. You can read this in the following test report.



Generation of vaccine ChAdOx1 nCoV-19

The spike protein of SARS-CoV-2 (GenBank accession number YP_009724390.1)—the surface glycoprotein responsible for receptor binding, fusion and entry into the host cell—was codon-optimized for expression in human cell lines and synthesized with the tissue plasminogen activator (tPA) leader sequence at the 5′ end by GeneArt Gene Synthesis (Thermo Fisher Scientific). The sequence, which encodes amino acids 2–1273 of SARS-CoV-2 and the tPA leader, was cloned into a shuttle plasmid using InFusion cloning (Clontech). The shuttle plasmid encodes a modified human cytomegalovirus major immediate early promoter with tetracycline operator sites and a poly-adenylation signal from bovine growth hormone between Gateway recombination cloning sites. ChAdOx1 nCoV-19 was prepared using Gateway recombination technology (Thermo Fisher Scientific) between the shuttle plasmid described and the previously described ChAdOx1 destination DNA BAC vector[5], resulting in the insertion of the SARS-CoV-2 expression cassette at the E1 locus. The ChAdOx1 adenovirus genome was excised from the BAC using unique PmeI sites flanking the adenovirus genome sequence. The virus was rescued and propagated in T-Rex HEK293 cells (Invitrogen) in which antigen expression during virus propagation is repressed. Purification was carried out using CsCl gradient ultracentrifugation. Virus titres were determined by hexon immunostaining assay and viral particles were calculated on the basis of spectrophotometry[16,17]

CDC. Virus propagation was performed in Vero E6 cells in DMEM supplemented with 2% fetal bovine serum (FBS), 1 mM L-glutamine, 50 U ml^{-1} penicillin and 50 µg ml^{-1} streptomycin. The used virus stock was 100% identical to the initial deposited GenBank sequence (MN985325.1) and no contaminants were detected. Vero E6 cells were maintained in DMEM supplemented with 10% FBS, 1 mM L-glutamine, 50 U ml^{-1} penicillin and 50 µg ml^{-1} streptomycin. Vero E6 cells were provided by R. Baric and were not authenticated in-house; mycoplasma testing was performed at regular intervals and no mycoplasma was been detected.

Virus isolation from tissue

Tissue sections were weighed and homogenized in 1 ml of DMEM. Then, 250 µl of homogenate was added to Vero E6 cells in a 24-well plate in duplicate. After 1 h at 37 °C and 5% CO_2, cells were washed with PBS and 500 µl of DMEM containing 2% FBS was added. Cells were incubated at 37 °C and 5% CO_2. Cytopathogenic effects were assessed 6 days later.

Virus neutralization assay for SARS-CoV-2

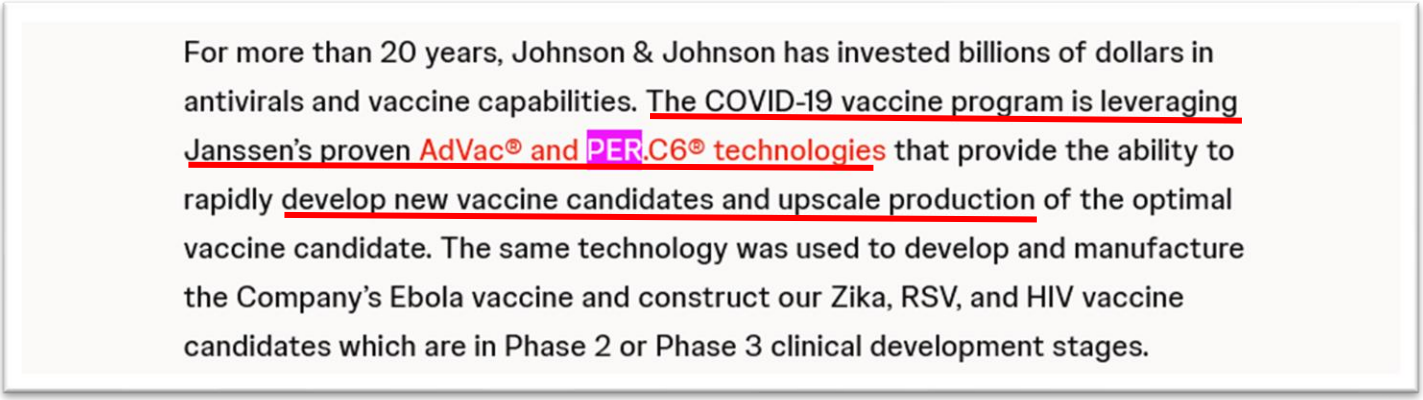
Sera were heat-inactivated (30 min, 56 °C), twofold serial dilutions were prepared in 2% DMEM and 100 $TCID_{50}$ of SARS-CoV-2 was added. After 1 h incubation at 37 °C and 5% CO_2, the virus:serum mixture was added to Vero E6 cells and incubated at 37 °C and 5% CO_2. At 5 d.p.i., cytopathogenic effects were assessed. The virus neutralization titre

ChAdOx1 nCoV-19 vaccine prevents SARS-CoV-2 pneumonia in rhesus macaques, van Doremalen et al., published by Nature.com, 30 July 2020.
https://www.nature.com/articles/s41586-020-2608-y (consulted 10-11-2024)
https://www.nature.com/articles/s41586-020-2608-y.pdf (consulted 10-11-2024)

The experiments were carried on "rhesus macaques" apes.

Janssen / Johnson & Johnson

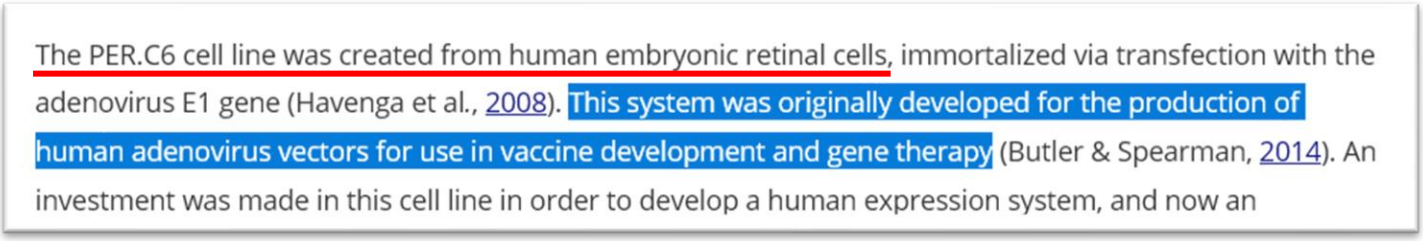
The **PER.C6** cell line was used in the development and the mass production of the vaccine.



For more than 20 years, Johnson & Johnson has invested billions of dollars in antivirals and vaccine capabilities. The COVID-19 vaccine program is leveraging Janssen's proven AdVac® and PER.C6® technologies that provide the ability to rapidly develop new vaccine candidates and upscale production of the optimal vaccine candidate. The same technology was used to develop and manufacture the Company's Ebola vaccine and construct our Zika, RSV, and HIV vaccine candidates which are in Phase 2 or Phase 3 clinical development stages.

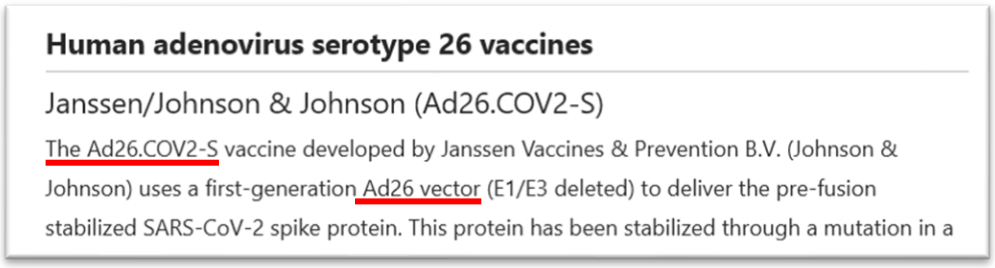
Website of Janssen / Johnson & Johnson (consulted 10-11-2024) https://www.jnj.com/media-center/press-releases/johnson-johnson-announces-a-lead-vaccine-candidate-for-covid-19-landmark-new-partnership-with-u-s-department-of-health-human-services-and-commitment-to-supply-one-billion-vaccines-worldwide-for-emergency-pandemic-use

The **PER.C6 cell line** was derived from the **retinal cells of an aborted baby** for the purposes of vaccine development and gene therapy.



The PER.C6 cell line was created from human embryonic retinal cells, immortalized via transfection with the adenovirus E1 gene (Havenga et al., 2008). This system was originally developed for the production of human adenovirus vectors for use in vaccine development and gene therapy (Butler & Spearman, 2014). An investment was made in this cell line in order to develop a human expression system, and now an

Human cell lines for biopharmaceutical manufacturing: history, status, and future perspectives, Dumont et al., published by tandfonline.com, 18 Sep 2015.
https://www.tandfonline.com/doi/full/10.3109/07388551.2015.1084266#d1e200 (consulted 27-1-2026)



Human adenovirus serotype 26 vaccines

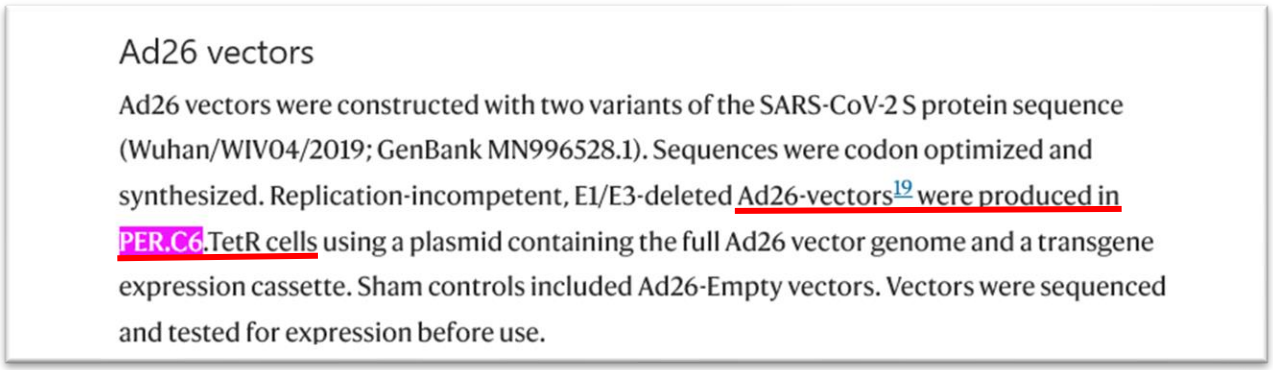
Janssen/Johnson & Johnson (Ad26.COV2-S)

The Ad26.COV2-S vaccine developed by Janssen Vaccines & Prevention B.V. (Johnson & Johnson) uses a first-generation Ad26 vector (E1/E3 deleted) to deliver the pre-fusion stabilized SARS-CoV-2 spike protein. This protein has been stabilized through a mutation in a

Adenoviral vector vaccine platforms in the SARS-CoV-2 pandemic, published by Nature.com, Andrade et al., 05 August 2020 https://www.nature.com/articles/s41541-021-00356-x (consulted 10-11-2024)

"**Ad26.COV2-S**" is the code name for the de Janssen /Johnson & Johnson Covid-19 vaccine. Janssen / Johnson & Johnson use what they call the **Ad26 vector** in their vaccine ''to deliver'' a modified version of the SARS-CoV-2 spike protein.

The **PER.C6.**TetR cell line was used for the production of Ad26 vectors. These Ad26 vectors were then tested in hamsters.

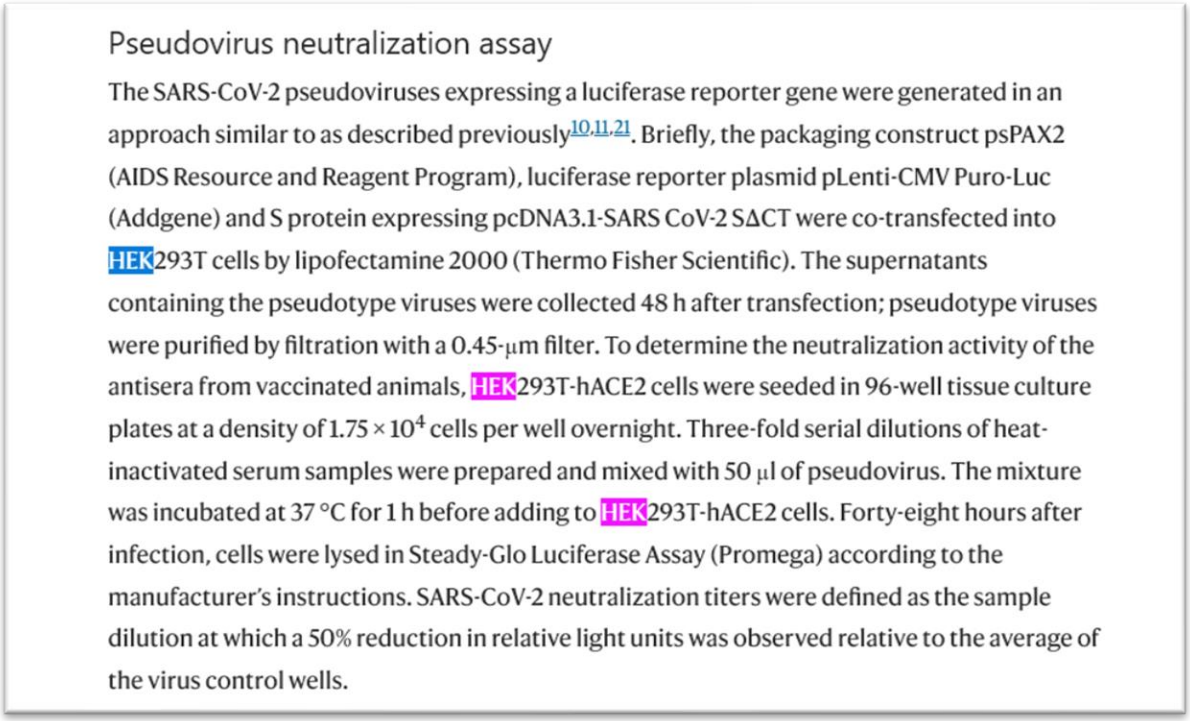


Ad26 vectors

Ad26 vectors were constructed with two variants of the SARS-CoV-2 S protein sequence (Wuhan/WIV04/2019; GenBank MN996528.1). Sequences were codon optimized and synthesized. Replication-incompetent, E1/E3-deleted Ad26-vectors[19] were produced in PER.C6.TetR cells using a plasmid containing the full Ad26 vector genome and a transgene expression cassette. Sham controls included Ad26-Empty vectors. Vectors were sequenced and tested for expression before use.

Ad26 vaccine protects against SARS-CoV-2 severe clinical disease in hamsters, Tostanoski et al., published by Nature.com, 03 September 2020. https://www.nature.com/articles/s41591-020-1070-6 (geraadpleegd 11-11-2024) https://www.nature.com/articles/s41591-020-1070-6.pdf (geraadpleegd 11-11-2024)

The **HEK 293** cell line was apparently also used in the testing of the vaccine in hamsters.



Pseudovirus neutralization assay

The SARS-CoV-2 pseudoviruses expressing a luciferase reporter gene were generated in an approach similar to as described previously[10,11,21]. Briefly, the packaging construct psPAX2 (AIDS Resource and Reagent Program), luciferase reporter plasmid pLenti-CMV Puro-Luc (Addgene) and S protein expressing pcDNA3.1-SARS CoV-2 SΔCT were co-transfected into HEK293T cells by lipofectamine 2000 (Thermo Fisher Scientific). The supernatants containing the pseudotype viruses were collected 48 h after transfection; pseudotype viruses were purified by filtration with a 0.45-μm filter. To determine the neutralization activity of the antisera from vaccinated animals, HEK293T-hACE2 cells were seeded in 96-well tissue culture plates at a density of 1.75×10^4 cells per well overnight. Three-fold serial dilutions of heat-inactivated serum samples were prepared and mixed with 50 μl of pseudovirus. The mixture was incubated at 37 °C for 1 h before adding to HEK293T-hACE2 cells. Forty-eight hours after infection, cells were lysed in Steady-Glo Luciferase Assay (Promega) according to the manufacturer's instructions. SARS-CoV-2 neutralization titers were defined as the sample dilution at which a 50% reduction in relative light units was observed relative to the average of the virus control wells.

Ad26 vaccine protects against SARS-CoV-2 severe clinical disease in hamsters, Tostanoski et al., published by Nature.com, 03 September 2020. https://www.nature.com/articles/s41591-020-1070-6 (consulted 11-11-2024) https://www.nature.com/articles/s41591-020-1070-6.pdf (consulted 11-11-2024)

From another study on the Janssen /Johnson & Johnson vaccine it appears that the **PER.C6**.TetR cell line was also used for the production of Ad26 vectors. But these were then tested in apes, "rhesus macaques".

Ad26 vectors

Ad26 vectors were constructed with seven variants of the SARS-CoV-2 spike (S) protein sequence (Wuhan/WIV04/2019; GenBank MN996528.1). Sequences were codon-optimized and synthesized. Replication-incompetent, E1/E3-deleted Ad26-vectors[11] were produced in PER.C6.TetR cells using a plasmid containing the full Ad26 vector genome and a transgene expression cassette. Vectors were sequenced and tested for expression before use.

The **HEK 293** cell line was also apparently used in the testing of the vaccine in apes, "rhesus macaques".

Pseudovirus neutralization assay

The SARS-CoV-2 pseudoviruses expressing a luciferase reporter gene were generated in an similar approach to that previously described[9,10,16]. In brief, the packaging construct psPAX2 (AIDS Resource and Reagent Program), luciferase reporter plasmid pLenti-CMV Puro-Luc (Addgene), and spike protein expressing pcDNA3.1-SARS-CoV-2 SΔCT were co-transfected into HEK293T cells with calcium phosphate. The supernatants containing the pseudotype viruses were collected 48 h after transfection; pseudotype viruses were purified by filtration with 0.45-μm filter. To determine the neutralization activity of the antisera from vaccinated macaques, HEK293T-hACE2 cells were seeded in 96-well tissue culture plates at a density of 1.75×10^4 cells per well overnight. Twofold serial dilutions of heat-inactivated serum samples were prepared and mixed with 50 μl of pseudovirus. The mixture was incubated at 37 °C for 1 h before adding to HEK293T-hACE2 cells. After 48 h, cells were lysed in Steady-Glo Luciferase Assay (Promega) according to the manufacturer's instructions. SARS-CoV-2 neutralization titres were defined as the sample dilution at which a 50% reduction in relative light units was observed relative to the average of the virus control wells.

Single-shot Ad26 vaccine protects against SARS-CoV-2 in rhesus macaques, Mercado et al., published by Nature.com, 30 July 2020. https://www.nature.com/articles/s41586-020-2607-z (consulted 11-11-2024)
https://www.nature.com/articles/s41586-020-2607-z.pdf (consulted 11-11-2024)

Novavax

The **HEK 293** cell line was used in the testing of the vaccine. You can read this in the following test report.

It explains that the spike protein was produced in mammalian **human embryotic kidney** (**HEK) 293 cells**.

region of the spike not resolved by cryo-EM. By comparison with site-specific glycan processing of the spike protein produced in mammalian human embryonic kidney (HEK) 293F cells, both mammalian cells and insect cells exhibit extensive processing at most sites. In general, however processing of glycans on the 2019 CoV prefusion spike protein from insect cells was somewhat greater, particularly at sites 709 and 717, which were predominately oligomannose in spike from HEK293 cells but exclusively complex or paucimannose in spike from Sf9 cells (*29*).

Structural analysis of full-length SARS-CoV-2 spike protein from an advanced vaccine candidate, Bangaru et al., published by Science.org, 20 October 2020. And posted on bioRxiv.org, 06 August 2020.
https://www.science.org/doi/10.1126/science.abe1502 (consulted 11-11-2024)
https://www.science.org/doi/epdf/10.1126/science.abe1502 (consulted 11-11-2024)

To evaluate if the multimerization phenomenon observed in the full-length spike construct played a role in virus replication, we performed pseudovirus replication assays with SARS-CoV-2 wild-type (WT) spike and two mutant spikes. In mutant 1, the loop residues 621-PVAIHADQ-628 were replaced with a glycine-serine linker to completely knockout binding to NTD and in mutant 2, residues 619-EVPV-622 of SARS-CoV-2 were reverted to residues 619-DVST-622 of SARS-CoV-1. Pseudoviruses containing either WT or mutant spikes were generated in HEK293T cells and used to infect HeLa or HeLa-ACE2 cells. While the WT and mutant 2 exhibited similar levels of infection, we observed no detectable levels of infection for mutant 1 in which all contact residues on the loop were replaced by a GS linker (Figure 4F).

Our analysis detected glycosylation at all 22 potential N-linked glycan sequons present on SARS-CoV-2 spike (Figure 4G). Overall, there was high glycan occupancy of over >98%, with only two sites, 603 and 657, more than 5% unoccupied. Interestingly, we did not see clear glycan density at either 603 or 657 in the cryo-EM reconstruction of the 3Q-2P-FL spike. Most sites showed extensive glycan processing to complex/paucimannose type glycans, with only four sites that exhibit ≥40% oligomannose. The glycan analysis also confirmed the presence of glycans at sites 1158, 1173 and 1194 present in the membrane-proximal region of the spike not resolved by cryo-EM. The extensive site-specific glycan processing of the SARS-CoV-2 prefusion spike protein in SF9 insect cells seen here is similar to that recently reported for the spike protein produced in mammalian HEK293F cells (27).

Structural analysis of full-length SARS-CoV-2 spike protein from an advanced vaccine candidate, Bangaru et al., published by Science.org, 20 October 2020. And posted on bioRxiv.org, 06 August 2020.
https://www.biorxiv.org/content/10.1101/2020.08.06.234674v1.full (consulted 11-11-2024)
https://www.biorxiv.org/content/10.1101/2020.08.06.234674v1.full.pdf (consulted 11-11-2024)

Conclusion

To summarise the above: **HEK 293** and **PER.C6** were the most commonly used fetal cell lines in COVID-19 vaccine development. Oxford University also came to this conclusion:

Summary

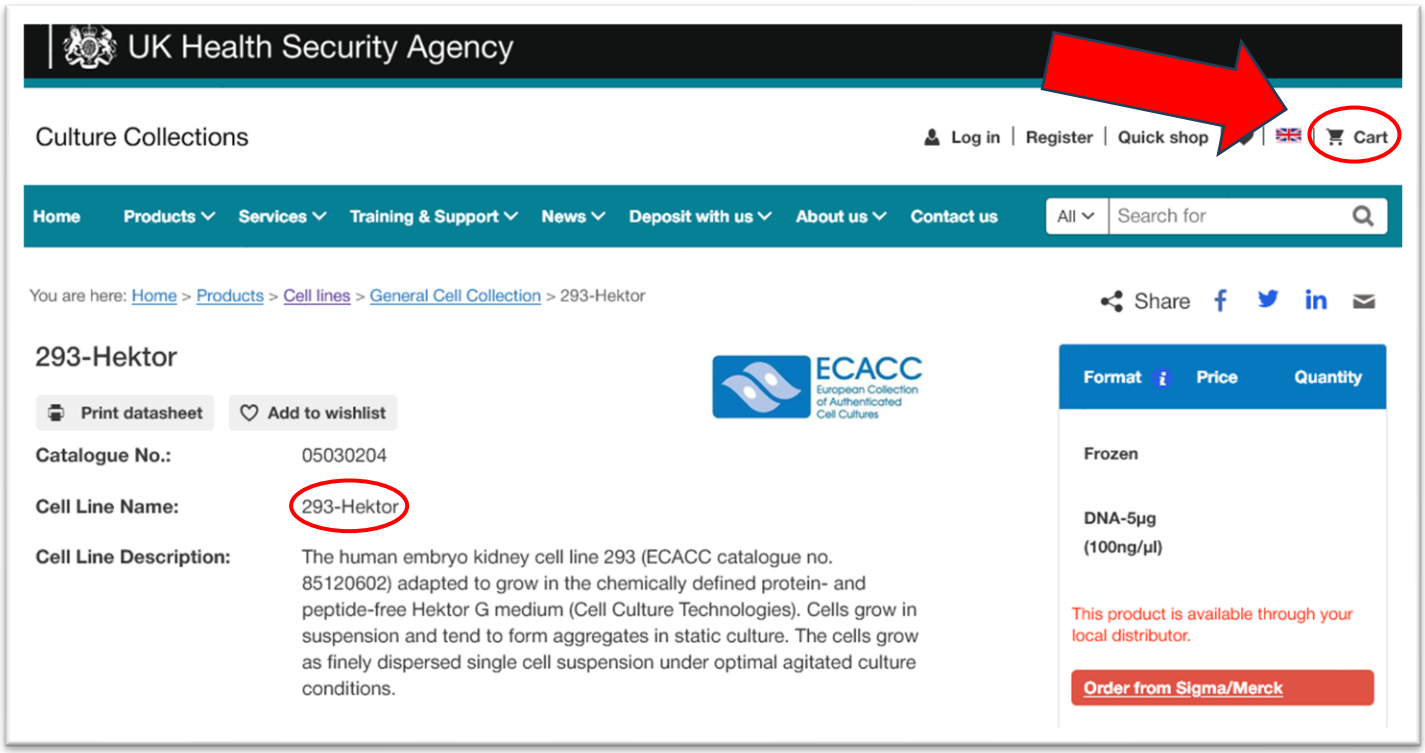
A detailed literature search was conducted to identify the common fetal cell lines used in COVID-19 vaccine development; the two most prevalent fetal cell lines identified were HEK-293 and PER.C6. Subsequent literatures searches were conducted to identify transplant medications and biologics whose

***A review of fetal cell lines used during drug development: Focus on COVID-19 vaccines**, transplant medications, and biologics, Durant et al., published by **American Journal of Health-System Pharmacy**, Volume 81, Issue 13, 1 July 2024, Pages e336–e344, https://doi.org/10.1093/ajhp/zxae031. And online on academic.oup.com, 13 February 2024,* https://academic.oup.com/ajhp/article-abstract/81/13/e336/7606814?login=false.

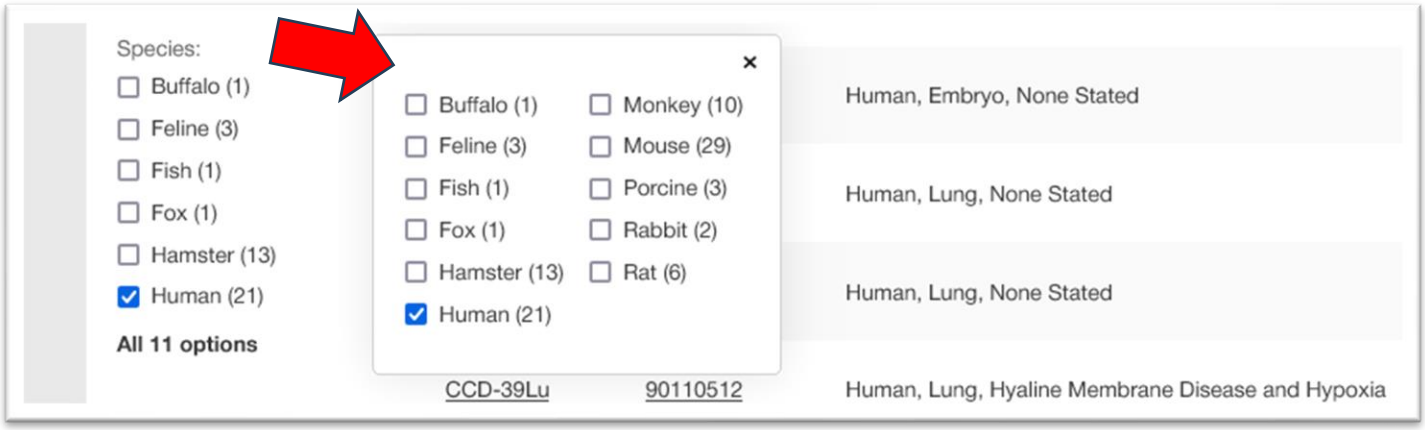
Who does this?

It is important to note that it's not only private companies that are involved in the supply and trade in fetal cells lines derived from the cells of aborted babies. Governments are doing this too.

For example, you can buy them from the UK government at: culturecollections.org.uk.



Here you can order your desired cell line from an easy to use menu. When you have found the cell line you want, you can just drop it into your shopping cart. The **HEK 293** cell line for example (**293-Hector**).



UK government website: (consulted 13-11-2024) https://www.culturecollections.org.uk/nop/product/293-hektor

What does this tell us?

This is what we have come to. The pharmaceutical industry, universities and governments together form a **medical-industrial complex** that operates without any respect for the sanctity of human life.

Abortion, an abomination in God's sight, makes the above horrific use of human **fetal body parts** possible. Babies have now become things whose parts can be used and traded whenever and wherever.

The **priceless and irreplaceable children God gives us** are now used in the **mass production** of pharmaceutical products and are traded like **commodities**.

The use of cell lines derived from the **cells of aborted babies** in **COVID-19 vaccins**

Manufacturer	Research & development / testing	Mass production
Pfizer BIONTECH	HEK 293 	None 
moderna messenger therapeutics	HEK 293 	None 
AstraZeneca	MRC-5, HEK 293 	HEK 293 
Johnson & Johnson janssen	PERC.6, HEK 293 	PERC.6 
NOVAVAXAB	HEK 293 	None 

List of common cell lines derived from aborted babies:

- **HEK 293**, Human Embryonic Kidney cells 293, also often referred to as HEK-293, 293 cells, or less precisely as HEK cells, are a specific cell line originally derived from **the kidney tissue of an aborted fetus** grown in a tissue culture.
- **WI-38** is a diploid human cell culture line composed of fibroblasts derived from **the lung tissue of an aborted female fetus**.
- **MRC-5** (Medical Research Council cell strain 5) is a diploid human cell culture line composed of fibroblasts derived from **the lung tissue of a 14-week-old aborted male fetus**.
- **PERC.6** is a cell line derived from **human embryonic retinal cells**.

For more information: https://diederikengelen.nl/fetal-cells-used-in-vaccine-manufacture

You can read about how cell lines are made through abortions in this article: https://irp.cdn-website.com/e4e1af55/files/uploaded/Are_the_cells_of_aborted_babies_used_in_the_manufacturing_of_vaccines-.pdf

I would like to thank **Charlotte Lozier Institute** for their vital research on this issue.
http://lozierinstitute.org/wp-content/uploads/2020/12/CHART-Analysis-of-COVID-19-Vaccines-02June21.pdf