Speaking the truth in love
Eph 4:15

20 August 2020

The Hon. Scott Morrison MP
Prime Minister
Parliament House
Canberra ACT 2600

Dear Prime Minister

We are writing to you following yesterday's announcement that the Australian Government has signed an agreement for the production of the AstraZeneca/Oxford University COVID-19 vaccine should its clinical trials be successful.

Along with many Australians we are praying that a vaccine might be developed that will help bring an end to the pandemic. We were therefore disappointed to learn that of the 167 candidate vaccines for COVID-19 identified by the World Health Organisation, 29 of which are already in clinical evaluation, the Commonwealth has chosen to throw its lot in with one that makes use of a cell-line (HEK293) cultured from an electively aborted human foetus. It has been reported that if the vaccine is adopted for use in Australia it will be 'mandatory' or 'as near to mandatory as possible'; at the very least it can be expected that there will be enormous social and political pressure upon people to use it.

Some will have no ethical problem with using tissue from electively aborted foetuses for medical purposes. Others may regard the use of a cell-line derived from an abortion performed back in the 1970s as now sufficiently removed from the abortion itself to be excusable. But others again will draw a straight line from the ending of a human life in abortion through the cultivation of the cell-line to the use for manufacturing this vaccine; even if the cells have been propagated for years in a laboratory far removed from the abortion, that line of connection remains. They will be concerned not to benefit in any way from the death of the little girl whose cells were taken and cultivated, nor to be trivialising that death, and not to be encouraging the foetal tissue industry.

While we accept that the proposed vaccine may be sufficiently remote from the abortion that occasioned the derivation of the cell-line, we flag to you that any COVID-19 vaccine cultured on a foetal cell-line will raise serious issues of conscience for a proportion of our population. Those troubled by this may either acquiesce to the social and political pressure to use the vaccine, or conscientiously object to the use by themselves and their dependents; if the latter, they will suffer various disadvantages (e.g. denial of access to childcare, aged care or

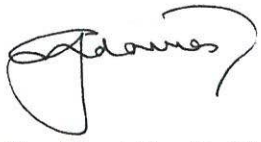
employment) and their abstention may undermine the goal of 'herd immunity'. Many will feel deeply conflicted whichever way they go. You may be aware that for some people the Rubella vaccine already presents such a moral dilemma.

Given that many other vaccine trials are being conducted that do not involve the use of morally compromised human cell lines, we write to seek your assurance: (1) that the use of the AstraZenica/Oxford University COVID-19 vaccine will in no sense be mandatory; (2) that no-one will be pressured to prescribe, dispense or consent to the use upon themselves or their dependents of the vaccine against their conscientious religious or moral beliefs or disadvantaged for failing to do so; and (3) that the government will ensure that an ethically uncontroversial alternative vaccine be made available in Australia if it is achieved.

We attach for your information briefings from the highly respected Anscombe Bioethics Centre in Oxford University and the Charlotte Lozier Institute in the United States.

Please be assured that our churches are not opposed to vaccination: as we have said, we are praying that one may be found. But we also pray that it be one that is not ethically tainted. Throughout the present pandemic we have, along with many other religious leaders, done our utmost to encourage our communities to comply with COVID safety directives. This has come at very considerable hardship for our churches as a whole and for many individual churchgoers. We are as eager as anyone in the community to see life return to normal. But we do not want this to be achieved at the price of many good people's consciences.

Yours sincerely in Christ



The Most Rev Dr Glenn N Davies
Archbishop of Sydney and
Metropolitan of New South Wales

Most Rev. Anthony Fisher OP
Catholic Archbishop of Sydney

His Eminence Archbishop Makarios
Primate of the Greek Orthodox Archdiocese of Australia

Encl.: *Helen Watt, 'COVID-19 vaccines and the use of foetal cells,' Anscombe Bioethics Institute COVID-19 Briefing Paper 2 (27 April 2020)* http://www.bioethics.org.uk/images/user/covidbriefing2.pdf
James Sherley, 'An ethics assessment of COCID-19 vaccine programs,' Charlotte Lozier Institute On Point 46 (May 2020) https://lozierinstitute.org/an-ethics-assessment-of-covid-19-vaccine-programs/

The Anscombe Bioethics Centre

COVID-19 Briefing Paper 2

27 April 2020

COVID-19 Vaccines and Use of Foetal Cell-lines

A COVID-19 vaccine would be deeply welcome in principle: it would save countless lives across the world. As with other drugs, ethical questions can arise with such a vaccine's development and use. Such questions can concern risks, whether to research volunteers or to the public when the vaccine is released. This briefing, however, looks at another question: the use of foetal cell-lines to create some – not all – COVID-19 vaccines currently under research. It examines whether such use by researchers is permissible when the cell-lines were originally created from tissue sourced from abortions, and whether accepting the vaccine makes one complicit in the abortion and harvesting of foetal tissue.

Vaccines are normally, though not always,[1] produced in living cells. While they can be generated (as with some COVID-19 vaccines in the making) in cells derived from ethically uncontentious sources such as insects,[2] tobacco plants,[3] and hamster ovaries,[4] they can also be produced in cell-lines made from tissue derived from an aborted unborn child. One such cell-line used in COVID-19 vaccine research (including a project of the University of Oxford[5]) is the HEK 293 cell-line modified from tissue taken from the kidney of an unborn child aborted probably in 1972, while another is the PER C6 cell-line from the retinal tissue of an 18-week baby aborted in 1985.

Responsibilities of vaccine manufacturers and health officials

Simply as a matter of fact, use of such cell-lines in COVID-19 vaccine production is likely to create problems of conscience for some of those to whom the vaccine is offered, and who

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[1] Ryan O'Hare, 'Coronavirus vaccine team secures funding to move towards human trials', 17 April 2020, https://www.imperial.ac.uk/news/196775/coronavirus-vaccine-team-secures-funding-move/; Mike Freeman, 'Inovio pharmaceuticals gets funding for clinical trial of COVID 19 vaccine in South Korea', San Diego Union-Tribune, 16 April 2020, https://www.sandiegouniontribune.com/business/biotech/story/2020-04-16/inovio-pharmaceuticals-gets-funding-for-clinical-trial-of-covid-19-vaccine-in-south-korea

[2] Sanofi and GSK to join forces in unprecedented vaccine collaboration to fight COVID-19, https://www.sanofi.com/en/media-room/press-releases/2020/2020-04-14-13-00-00

[3] Oliver Gill, 'Cigarette maker BAT claims coronavirus vaccine breakthrough', Telegraph, 1 April 2020, https://www.telegraph.co.uk/business/2020/04/01/cigarette-maker-claims-coronavirus-vaccine-breakthrough/

[4] 'Coronavirus outbreak: how the COVID 19 vaccine is being made', Sydney Morning Herald, https://www.smh.com.au/national/coronavirus-outbreak-how-the-covid-19-vaccine-is-being-made-20200220-p542rh.html

[5] 'Oxford COVID 19 vaccine programme opens for clinical trial recruitment', 27 March 2020, http://www.ox.ac.uk/news/2020-03-27-oxford-covid-19-vaccine-programme-opens-clinical-trial-recruitment

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become aware of its history. I have written elsewhere about the need for drug companies and health officials[6] to take seriously the likelihood of conscientious objection of this kind.

Conscientious objection on the part of potential vaccine recipients creates its own ethical demands for decision-makers, including those who do not themselves share the objection in question. Such concerns should be viewed with particular sympathy in the area of abortion, bearing in mind that even those who do not object to all abortions may well object to the particular abortion from which a foetal cell-line was derived. For example, many object to late-term abortions for social reasons, like the abortion producing the PER C6 cell-line.

Responsibilities of scientists and vaccine recipients

When considering questions of complicity with unjust or wrongful actions, the exact connection between one's own and others' actions must be examined, including both the immediate and the longer-term intentions of oneself and other people. There is a chain of actions from the original abortion and harvesting of foetal tissue, to the creation of a foetal cell-line, to its use in the creation of a vaccine, to the vaccine's marketing and purchase, and offer to and use by members of the public. Is complicity involved at every stage, and if so, to what extent? The links in the chain must be separately considered, since objections to links earlier in the chain may not be present in undiminished force further down the chain.

Foetal tissue harvesting and creation of cell-lines

For those who are clear that abortion is the unjust killing of a young human being with full moral worth, it should also be clear that the original harvesting of foetal tissue was deeply immoral, given the messages it conveyed and the close collaboration with the abortionist it will have involved. In the language of 'cooperation in evil', this was not 'material' (unintentional) cooperation, however illicit, with the abortion but was rather 'formal' (intentional) cooperation with the abortion or at very least, with preparations for it.

To negotiate with an abortionist before the abortion to collect foetal remains involves a sharing of intentions between oneself and the abortionist concerning wrongful preparation for the abortion and its immediate aftermath: agreeing on details for pickup, getting advance consent from the woman and so on. Indeed, abortions have been carried out, including in the recent past, by means intended to facilitate the harvesting of fresh foetal tissue, making the tissue collector deeply complicit, not only in preparatory planning but in the very act of abortion. More generally, tissue collection cannot simply be thought of as an enterprise completely subsequent to and separate from abortion. In practice, it involves sharing plans for the abortion as well as sending out a complicit message about it.

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[6] Helen Watt, 'COVID 19 and vaccine ethics: pre-empting conscientious objection', Journal of Medical Ethics Blog, 9 April 2020, https://blogs.bmj.com/medical-ethics/2020/04/09/covid-19-and-vaccine-ethics-pre-empting-conscientious-objection/ On this issue, an open letter http://www.usccb.org/about/pro-life-activities/upload/Letter-to-FDA-urging-ethical-COVID-vaccines.pdf was sent recently to the FDA signed by the Chairmen of several USCCB Committees, together with health professionals and others, calling for non-foetally-produced COVID vaccines to be made available.

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In the case of an adult victim of homicide – say, a political prisoner executed by an oppressive regime – no reputable company or researcher would negotiate with the regime concerning the collection of the body for a research project, much less make arrangements for a method of execution that enables the harvesting of usable tissue. Such arrangements might well encourage future killings and/or provide those responsible with a false consolation which could obstruct any true remorse for what they have done. Knowing that tissue harvested could be used to save lives could even contribute, before the event, to preventing a change of a heart by someone conflicted about a planned taking of life. A woman who is ambivalent about her abortion – as many women seeking abortions are ambivalent[7] – may be less likely to change her mind if she has already given permission for the use of tissue from her baby, which may seem to her in some way to legitimise her action. After the event, the knowledge that tissue was taken from her child with her consent will complicate her thoughts and feelings about the abortion: any grief, pain and guilt she experiences may be even harder to process and resolve. In any event, her own agreement that tissue be harvested is no more acceptable than that of the abortionist seeking her consent: both she and the abortionist, in agreeing on harvesting, are wrongly preparing for the abortion that involves or precedes harvesting.

From the perspective of the cell-line creator, it should be noted that the mere use of a go-between – a tissue bank or tissue procurement company – cannot sanitise the close complicity involved in obtaining and using foetal tissue. By analogy, if property is obtained through violent robbery, the fact it is obtained via a 'receiver of stolen goods', not the robber himself, is not enough to legitimate it: the connection is scandalously close even if the transaction is not (as it may be) pre-arranged.

Use of cell-lines in vaccine production

What should we say about the vaccine researcher using a cell-line already created, perhaps many years ago, from tissue derived from an abortion? We should begin by remembering that we benefit in many ways from past injustices and crimes. We walk in Rome on paving laid by slaves;[8] we live in countries that our ancestors unjustly invaded; we buy in the second-hand market items which, though now untraceable, were almost certainly stolen at some time in the past. The more pairs of hands that separate us from the original wrongdoers, and the less we are part of an organised system, the less scandalous the messages we send out and the more likely it is that our actions are defensible. However, these actions are, conversely, less likely to be defensible if the wrongs in question, as with abortion and foetal tissue harvesting, not only continue to the present day, but continue with some degree of social sanction.

Use of existing foetal cell-lines is certainly a serious moral issue, even if such use is not as obviously objectionable as receiving foetal tissue from an abortionist or go-between. Such cell-lines, including very old cell-lines, often pass freely from laboratory to laboratory. Many scientists will not focus on, or perhaps even know, the provenance of very old cell-lines until

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[7] M Törnbom, E Ingelhammar, H Lilja, B Svanberg, A Möller (1999) Decision-making about unwanted pregnancy, *Acta Obstetricia et Gynecologica Scandinavica*, 78, 636-641.

[8] Alexander Pruss (2005) Cooperation with past evil and use of cell-lines derived from aborted fetuses, in H. Watt (ed.), *Cooperation, Complicity and Conscience: Problems in health care, science, law and public policy*. London: Linacre Centre, pp.89-104.

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these become a matter of controversy. That said, when controversy develops, it is indeed possible that use of foetal cell-lines could convey a message that the scientist accepts or is indifferent to abortion and foetal tissue harvesting – even if the scientist is in fact opposed to both. This in turn could involve 'material' (unintentional) encouragement of future harvesting of foetal tissue or early human embryonic cells: a scenario significantly more likely, however, if a scientist is using recently-created cell-lines of more 'visible' origin.

One scientist who formerly used an embryonic stem cell-line obtained from another institution led his laboratory colleagues to conclude that the end (scientific discoveries from embryonic stem cell research) must justify the means (destruction of IVF embryos).[9] In the case of abortion-derived cell-lines, it may be unlikely that the 'West' will change their protocols from use of older, well characterised and still functional foetal cell-lines to replace them with unknown, recently created (and correspondingly more scandalous) foetal cell-lines – such as the Chinese Walvax2 cell-line created from an unborn child delivered by 'water bag' abortion.[10] While cell-lines are not necessarily immortal, cell-lines already in existence throughout the world are likely to last for decades more. That said, cell-free methods as well as non-foetal cell-lines are used already and can be used in vaccine development, and methods will no doubt go on evolving.

Catholic responses

Concerns about use of foetal cell-lines in vaccine production are not limited to Christians or those of faith. They relate to a widely-shared concern to avoid complicity with unjust killing in the first place, and with the wrongful use of the bodies of those unjustly killed in the second. That said, such concerns are undoubtedly shared in particular by religious people – even if many people, whether religious or otherwise, are still unaware of the origin of some vaccines.

The CDF document *Dignitas Personae,*[11] commenting on the use of foetal and embryonic cell-lines, states that scientists have a duty to refuse the use of illicitly-produced material "even when there is no close connection between the researcher and the actions of those who performed the artificial fertilization or the abortion". This duty, it claims, "springs from the necessity to *remove oneself,* within the area of one's own research, *from a gravely unjust legal situation and to affirm with clarity the value of human life."* The document makes these further observations:

> "within this general picture there exist *differing degrees of responsibility*. Grave reasons may be morally proportionate to justify the use of such "biological material". Thus, for example, danger to the health of children could permit parents to use a vaccine which

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[9] Nicanor Austriaco (2010) Using Morally Controversial Human Cell Lines after Dignitas personae, National Catholic Bioethics Quarterly, 10:2, 267-268, https://www.pdcnet.org/ncbq/content/ncbq_2010_0010_0002_0265_0272

[10] Bo Ma, Li-Fang He, Yi-Li Zhang, Min Chen, Li-Li Wang, Hong-Wei Yang, Ting Yan, Meng-Xiang Sun & Cong-Yi Zheng (2015) Characteristics and viral propagation properties of a new human diploid cell line, walvax-2, and its suitability as a candidate cell substrate for vaccine production, Human Vaccines & Immunotherapeutics, 11:4, 998-1009, https://www.tandfonline.com/doi/pdf/10.1080/21645515.2015.1009811?needAccess=true

[11] Congregation for the Doctrine of the Faith, *Dignitas Personae,* paragraph 35. Although two statements, widely separated in time, by the Pontifical Academy for Life are often mentioned in connection with vaccines, *Dignitas Personae*, while drawing on prior work of the Pontifical Academy for Life, would be considered more authoritative.

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was developed using cell lines of illicit origin, while keeping in mind that everyone has the duty to make known their disagreement and to ask that their healthcare system make other types of vaccines available. Moreover, in organizations where cell lines of illicit origin are being utilized, the responsibility of those who make the decision to use them is not the same as that of those who have no voice in such a decision."

The requirements for scientists (in particular, principal investigators) in *Dignitas Personae* are certainly demanding, and there was some discussion by Catholic scientists of the implications for ongoing research when the document first appeared.[12] Even if the scientist using the cell-line is at some remove from the original abortion and tissue harvesting and creation of the cell-line, since abortion and tissue harvesting continue with some degree of social endorsement, there may be a risk of appearing to condone such continuation by making use of existing cell-lines in one's research.[13] Against this, it can be argued that with very common, very old cell-lines, these are 'invisible' to scientists such that drawing attention to them may create scandalous messages that would otherwise be avoided. However, the issue may not remain so invisible with the appearance of newly-created embryonic or foetal cell-lines. It may be more difficult to protest against use of such new cell-lines for some particular purpose if older foetal cell-lines have been used routinely in one's research. The use of such older cell-lines remains at very least morally problematic.

Boycotting foetally-produced COVID vaccines

Should COVID-19 vaccines be the subject of a boycott by potential recipients, if they were produced using foetal cell-lines? Boycotting a COVID-19 vaccine *in the absence of an alternative* is a serious action that should be carefully considered, because of its potentially grave risks both for the person and for others. These risks will in turn depend on such factors as the person's state of health and family and work circumstances and the presence of the virus (or immunity to the virus) in the community in which he or she lives. To give just two examples, for health care professionals and those with vulnerable family members living with them, a boycott may be incompatible with retaining a role in health care, or living with/caring for the family member.

There is, however, a possibility that even if a COVID-19 vaccine is produced from a foetal cell-line – which may or may not eventuate – a non-foetally-produced alternative will come onto the market at a similar time, given that several are in development such as those mentioned earlier[14] (just as non-foetally-produced vaccines are available for other diseases[15]). For those who can access the alternative without excessive difficulty (and their efforts should be assisted,

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[12] See e.g. Nicanor Austriaco (2010) Using Morally Controversial Human Cell Lines after Dignitas personae, National Catholic Bioethics Quarterly, 10:2, 265-272, https://www.pdcnet.org/ncbq/content/ncbq_2010_0010_0002_0265_0272

[13] This is also an issue for research volunteers on whom the product (a COVID-19 vaccine, for example) is tested before it is marketed, and whose responsibility seems to fall in between that of scientists and that of members of the public when the vaccine is released.

[14] See also the list at https://cogforlife.org/wp-content/uploads/CovidCompareMoralImmoral.pdf

[15] https://cogforlife.org/wp-content/uploads/vaccineListOrigFormat.pdf

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not obstructed, by health authorities) the moral onus is certainly on the person to do this, as a witness to the value of human life and life-respecting research.

We should bear in mind that exercising a boycott need not imply that use of the boycotted product is *intrinsically* immoral; rather, boycotts are often rightly regarded simply as a means of achieving change by highlighting abuses. (For example, when South African fruit was boycotted during apartheid, this was not because boycotters were necessarily claiming it was intrinsically wrong to eat South African fruit.)

If an alternative is not reasonably available, some will decide, under protest, that they have grave reasons (in the words of *Dignitas Personae*) to accept a vaccine out of concern for their own health and the health of others they may infect. Such individuals should make their views on use of foetal cell-lines known to the health authorities, as *Dignitas Personae* urges, in the hope of raising awareness and helping to change the brutal culture in which abortion products are so widely used. Information on the vaccine's problematic origin could thus be useful even to those who decide to accept the vaccine, as this will help them raise consciousness in decision-makers about the use of remote or (far worse), immediate products of abortion.

Even if there is no absolute duty to boycott vaccines produced via existing foetal cell-lines – this is a matter for individual conscience and there will often be weighty reasons against it – some will feel, whether rightly or wrongly, called to a boycott even if no alternative vaccine is available to them. Again: governments should seek to fund research on, and purchase, morally uncontentious vaccines, both to reward morally uncontentious research and to provide more citizens with vaccines they can in conscience accept, even with full background information. Internationally, it is very much to be hoped that morally uncontentious vaccines will be made widely available to all peoples of the world, both to fight the COVID-19 pandemic and to combat other threats to life and health.

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An Ethics Assessment of COVID-19 Vaccine Programs

James L. Sherley, M.D., Ph.D., David Prentice, Ph.D. | May 6, 2020.

Vaccine List Table updated last June 19, 2020

This is Issue 46 in CLI's On Point Series. To view this report as a PDF, see: On Point 46: An Ethics Assessment of COVID-19 Vaccine Programs

The recent global concern for a devastating disease impact by COVID-19, the disease caused by the newly identified SARS-CoV-2 (CoV-19) coronavirus, has prompted a rapid intensification of efforts to develop an effective vaccine to limit the spread of the virus and to reduce COVID-19 illness and deaths. A study from the Coalition of Epidemic Preparedness Innovation (CEPI) identified 115 COVID-19 vaccines in development. At least 78 of these vaccine development initiatives were confirmed to be actively under way. However, many of these active projects are still only at the laboratory investigation stage (1), with many different biological strategies being investigated (2,3).

As shown in Table 1, there are a number of COVID-19 vaccine programs that are now in registered clinical trials or in early pre-clinical stages of development. Five of these identified efforts use genetically engineered adenoviruses for production of CoV-19 products that are thought likely to make effective vaccines. Engineered adenoviruses are established manufacturing vectors for gene therapies and viral vaccine development. The safety of these genetically modified viruses is due to their inability to reproduce themselves in the absence of artificially supplied factors that promote their self-multiplication. They are described as replication-deficient (RD) viruses. In order to manufacture RD adenoviruses or, in the case of vaccine production, their CoV-19 viral products, their viral genomes are introduced into cultured human cells genetically engineered to make their missing required replication factors (4,5). Several commonly used human cell lines developed for this function were established from cells taken from electively aborted human fetuses (4).

The use of cells from electively aborted fetuses for vaccine production makes these five COVID-19 vaccine programs potentially controversial and could reduce willingness of some to use the vaccine. While some may see no ethical problem, for many a straight line can be drawn from the ending of a human life in an abortion to a vaccine or drug created using cells derived from the harvesting of the fetal tissue. Even if the cells have been propagated for years in the laboratory far removed from the abortion, that connection line remains. Thus, use of such cells for vaccine production raises problems of conscience for anyone who might be offered that vaccine and is aware of its lineage. Moreover, the possibility of conscientious objection by those to whom a vaccine is offered creates ethical demands on the policymakers, healthcare officials, scientists, vaccine creators and funders, whether or not they themselves have an ethical concern, because of the question of access to the vaccine by the entire citizenry in good conscience. (6) This is especially true if alternative production methods and vaccines are possible for which there is no ethical question.

In June 2019, the U.S. Department of Health and Human Services (HHS) announced that it would no longer provide intramural funding for government research that requires new acquisition of tissues harvested from victims of ongoing elective abortion, would empanel an ethics review board to review all new or renewal extramural research applications proposing use of fetal tissue, and would provide funding to optimize and develop alternative research models that do not rely on human fetal tissue from elective abortions (7). Funding of new research using abortion-derived cells established prior to the new HHS rule (i.e., HEK293, Per.C6) was allowed to continue.

A rapidly-growing number of COVID-19 vaccine programs, 17 so far identified in Table 1, underscore the many alternative strategies available and useful for COVID-19 vaccine development that pose no controversy. In total, the U.S. government has invested just over a half billion dollars to support three of these vaccine programs (8). Although RD adenovirus strategies are not among the current ethically uncontroversial vaccine programs, good ethics do not preclude the use of adenoviruses to develop COVID-19 vaccines. Human cell lines engineered for RD adenovirus production that were ethically uncontroversial, established from amniocentesis cells have been available for more than a decade (4,5).

Adherence to the highest ethical standards in science and medicine serves all humanity, because it values the dignity of every human life and respects the consciences of all, without exploitation of any group.

Ethical Assessment of SARS-CoV-2 (CoV-19) Vaccine Candidates – *Updated 19 June 2020*

Unethical CoV-19 Vaccine Programs				
Sponsor(s)	**Country**	**Strategy**	**Clinical Trial Status**	**Public Funding**
CanSino Biologics, Inc. Institute of Biotech., Acad. Military Med. Sciences	China	Adenovirus vaccine "Ad5-nCoV"[2] HEK293 cells	NCT04313127 NCT04341389	
University of Oxford Astrazeneca	USA UK	Adenovirus vaccine "AZD1222" "ChAdOX1nCoV-19" HEK293 cells	NCT04324606 NCT04400838	HHS-BARDA[3] $1.2 billion[4]
Janssen Res. & Devel., Inc. Johnson & Johnson	USA	Adenovirus vaccine "Ad26" PER.C6 cells	NLF[5]	HHS-BARDA $456,237,081[4]
Univ. of Pittsburgh	USA	Adenovirus expressed recombinant proteins "PittCoVacc" HEK293 cells	Pre-clinical	
Altimmune	USA	Adenovirus vaccine "AdCOVID" (RD-Ad5) PER.C6 cells	NLF	
Ethically Uncontroversial CoV-19 Vaccine Programs				
Shenzhen Geno-immune	China	Lentivirus	NCT04299724	

Medical Institute		minigenes + Adult human APC[6] cells		
Shenzhen Geno-immune Medical Institute	China	Lentivirus minigenes + Adult human CD/T[7] cells "LV-SMENP-DC"	NCT04276896	
Symvivo Corporation	Canada	Oral bacterium *B. longum,* "bacTRL-spike"	NCT04334980	
Moderna, Inc. with National Institutes of Health	USA	RNA vaccine "mRNA-1273"	NCT04283461 NCT04405076	HHS-BARDA $430,298,520[4]
Inovio Pharmaceuticals	USA	DNA vaccine "INO-4800"	NCT04336410	
Inovio Pharmaceuticals Korea Natl. Inst. of Health	So. Korea	DNA vaccine "INO-4800"		CEPI[8] $6,900,000[9]
Protein Sciences-Sanofi Co.	USA	Protein vaccine Baculovirus expression	Pre-clinical	HHS-BARDA $30,775,336[4]
John Paul II Medical Research Institute	USA	Recombinant Protein Perinatal human cells[10]	NLF	
John Paul II Medical Research Institute	USA	Live attenuated virus Perinatal human cells	NLF	
Sanofi & Translate Bio	USA	RNA vaccine	Pre-clinical	
Sinovac Biotech Co., Ltd.	China	Inactivated CoV-19 "PiCoVacc" Vero monkey cells	NCT04352608 NCT04383574	
Pfizer and BioNTech	USA Germany	RNA vaccine "BNT-162a1,b1,b2,c2"	NCT04368728 NCT04380701	
Novavax	USA	Protein vaccine "NVX-CoV2373" Sf9 insect cells	NCT04368988	
Sorrento	USA	CoV-19 spike protein Expressed on K562 cells		
Arcturus Therapeutics	USA	RNA vaccine	Pre-clinical	
CureVac	Germany	RNA vaccine	Pre-clinical	CEPI $34 million[11]
Merck/IAVI	USA	Replication-competent recombinant vesicular stomatitis virus (VSVΔG) Vero monkey cells	Pre-clinical	HHS-BARDA $38,033,5704[4]

Table 1 legend

[1] National Institutes of Health, National Library of Science NCT number for clinical trials listed on U.S. clinicaltrials.gov

[2] Manufactured by CanSino Biologics, Inc.

[3] HHS-BARDA, U.S. Health and Human Services-Biomedical Advanced Research and Development Authority

[4] BARDA's rapidly-expanding COVID-19 medical countermeasure portfolio. 2020. https://www.medicalcountermeasures.gov/app/barda/coronavirus/COVID19.aspx.

[5] NLF, no registration listing found

[6] APC, antigen-presenting cells

[7] DC/T, dendritic cells and T cells

[8] CEPI, Coalition of Epidemic Preparedness Innovations

[9] Weil, D. 2020. Inovio gets $6.9M in funding for South Korea coronavirus vaccine trial. *The Street*. https://www.thestreet.com/investing/inovio-funding-coronavirus-vaccine-trial

[10] Donor-consented human umbilical cord and placental cells

[11] Christodoulou, M. 2020. CEPI awards US $34million contract to CureVac to advance The RNA Printer™—a mRNA vaccine platform that can rapidly combat multiple diseases. *CEPI News*. https://cepi.net/news_cepi/cepi-awards-contract-to-curevac-to-advance-the-rna-printer-a-mrna-vaccine-platform-that-can-rapidly-combat-multiple-diseases/

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References

1. Coalition of Epidemic Preparedness Innovation. 2020. CEPI publishes analysis of COVID-19 vaccine development landscape. https://cepi.net/news_cepi/cepi-publishes-analysis-of-covid-19-vaccine-development-landscape/.

2. Prentice, DA and Sander Lee, T. June 2020. A Visual Aid to Viral Infection and Vaccine Production. *On Science Series 1. Accessed June 19, 2020 at: https://lozierinstitute.org/a-visual-aid-to-viral-infection-and-vaccine-production/*

3. Callaway, E. 2020. The race for coronavirus vaccines: a graphical guide. Nature 580: 576-577. doi: 10.1038/d41586-020-01221-y.

4. Kovesdi, I. and Hedley, S. J. 2010. Adenoviral producer cells. *Viruses* 2(8): 1681-1703. doi: 10.3390/v2081681

5. Kochanek, S. and Schiedner, G. 2003. Permanent amniocytic cell line, its production and use for the production of gene transfer vectors. *USPTO* US6558948B1.

6. Watt, H. 27 April 2020. COVID-19 Vaccines and Use of Foetal Cell-lines. The Anscombe Bioethics Centre. Accessed May 4, 2020 at: http://www.bioethics.org.uk/images/user/covidbriefing2.pdf

7. Statement from the Department of Health and Human Services, June 5, 2019, accessed February 19, 2020 at: https://www.hhs.gov/about/news/2019/06/05/statement-from-the-department-of-health-and-human-services.html.

8. BARDA's rapidly-expanding COVID-19 medical countermeasure portfolio. 2020. Accessed June 19, 2020 at: https://www.medicalcountermeasures.gov/app/barda/coronavirus/COVID19.aspx.

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