



WINDOW TO BGST NEWSLETTER

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Gene-edited Children are here scientists playing God again?

Dr Alex Tang

Dr Alex Tang is a Consultant Paediatrician in a private hospital in Johor Bahru, Malaysia, an Associate Professor of Paediatrics, Monash University, and teaches in seminars on spiritual formation and bioethics. He is a spiritual director and has facilitated retreats all over the world. Alex is currently involved in developing a spiritual director training program in Indonesia.

On 26 November 2018, the world was stunned by the news that gene-edited girls were born in China. This was confirmed two days later by He Jiankui during a gene-editing summit in Hong Kong. There has not been any independent verification that the two gene-edited girls have actually been born so far. The reason given for the gene-editing was to disable a gene called CCR5 and thus make the person immune to HIV.

CRISPR, the technology to edit genes, has been around for a number of years. CRISPR is the abbreviation for Clustered Regularly Interspaced Short Palindromic Repeats. It enables scientists to edit genes by allowing them to add, delete and 'cut-and-paste' the genetic code. It was a major breakthrough. By almost unanimous consensus of most government and scientific communities, gene-editing of human beings has been out of bounds. Until now. The major concern of gene-editing and gene therapy, in general, is that while we know what a specific gene can do, we do not know what the interactions and effects of a particular gene will be, with regards to the whole genome; this is what scientists call 'off target effects'. Thus, modifying a specific gene can have unforeseen consequences for the gene-edited

person. The other main issue is that gene-editing may not affect all the cells resulting in mosaicism - a condition in which the person has two set of cells; the normal cells and the gene-edited cells. No one knows how mosaicism will affect a human being. Shockingly, He claims to have helped birth two gene-edited girls. This means that the edited genes of these children may be transmitted to their children.

We have been improving and enhancing human beings since we appeared on this earth. Through new knowledge in medicine, science and technology, we have been making humans healthier, live longer, able to recover from some diseases while limiting the effect of other diseases, participating in selective breeding through socioeconomic policies, and replacing missing parts with ever sophisticated appendices. We can even change our physical appearance and sexual bodies through surgery. Until recently, we have not touched the human genome. The mapping of the human genome was completed in April 2003. CRISPR, developed in 2009, was already used to edit human gene as part of an experiment in 2015.

So, should scientists be allowed to edit the human genome? What is the Christian perspective on this? It must be recognized that this is not a simple issue. There are many people who may benefit from this technology:

1. There are people suffering from diseases caused by a mutated gene, which may be inherited or caused by mutation. In principle, these people may be cured by gene-editing, through either removing, modifying or replacing the mutated gene with a normal one.
2. There are people who are well but are at high risk for future disease. For example, most inherited cases of breast cancer are associated with mutations in two genes: BRCA1 (BREast CAncer gene one) and BRCA2 (BREast CAncer gene two). At present, women with either or both of these genes are advised to undergo a total removal of both breasts because the risk of breast cancer is too high. There are also identifiable genes for heart disease, diabetes, cancer, baldness, Huntington Chorea and others. Would gene-editing be beneficial for them?
3. Others would benefit from using gene-editing on human T-cells to kill cancer cells. T-cells are the soldiers of our immune system. If we can gene-edit these T-cells to attack the cancer cells in the body, we can effectively cure people who are suffering from cancer.
4. There are people who want some sort of enhancement to their genetic makeup for various reasons.

The Christian response to gene-editing is often based on the value of the embryo, and the Imago Dei or the image of God. Genome editing acknowledges the value of the embryo and respects the Imago Dei, so these arguments are hard arguments to use against it. In fact, the Church has slowly assimilated most medical advances into her traditions and theology. Examples of such assimilation include the discovery of penicillin to combat infectious disease, the technological improvements of surgery, in-vitro fertilization (IVF) pregnancies, contraception, and organ transplants. All of these are examples of gradual acceptance by the Church in spite of initial resistance. Thus, it serves to ask: will the

Church accept gene-editing for people in groups (1), (2) and (3) above? Many Christians seem to think so. In the July 26, 2018 Pew Report, 57 percent of highly religious Americans supported gene editing as compared to 72 percent of all Americans. (Pew identifies "highly religious Americans" as those who attend services at least weekly, pray daily, and say that religion is very important in their lives.) Jeff Hardin, Professor and Chair of the Department of Integrative Biology and Faculty Director of the Biology Core Curriculum at the University of Wisconsin-Madison and a committed Christian noted,

These considerations lead me to a few suggestions for Christians in their thinking about genome editing. First, in thinking through how we ought to apply technology to the embryo, we should aim to treat the embryo as a patient and an end, a begotten gift, rather than a means, at all stages of development. Secondly, we must balance two realities of our relationship to technology. On the one hand, Christians are called to love, which means we ought to use technology to prevent disease. On the other hand, we should be wary of excessive technological optimism, especially when the use of technology violates important Christian values. Clearly, these considerations are in tension with one another, but we must seek to balance the two truths against one another.

In our consideration of a Christian perspective of genome editing, we may be asking the wrong question. Instead of asking about the *biology or technology of* genome editing, we should be asking about the *spirituality of* it. What does the Bible teach about the advocacy for the poor, the sick, the defenceless, and the disadvantaged? And what does the Bible teach about love? Perhaps then, we will be ready to discuss the Christian perspective of gene-editing.

Dr Alex Tang will be directing "Be Still", a BGST Spiritual Retreat, on Sat 27 April, 2019 (9:00am - 12:30pm).

**Information and registration at
bit.ly/bgstretreat.**

CALENDAR OF EVENTS 2019

SLEC-BGST CHAPEL / 24 APR (WED)

Rev Tay Houw Jin

12:00pm - 1:00pm @ BGST

Open to All. No registration required

SPIRITUAL RETREAT / 27 APR (SAT)

"BE STILL"

Dr Alex Tang

9:00 am - 12:30 pm @ BGST

bit.ly/bgstretreat

BGST 28TH CONVOCATION / 25 MAY (SAT)

Rev Daniel Wee

2:00 pm - 4:00 pm @ Prinsep Street Presbyterian Church

Open to All. No registration required

CELEBRATING 30 YEARS: OPEN HOUSE AND ALUMNI HOMECOMING / 1 JUN (SAT)

In Conversation With Rev Dr Quek Swee Hwa

2:00 pm - 4:30 pm @ BGST

bit.ly/bgsthomecoming

UK CHURCH HISTORY TOUR / 7-18 AUG

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@ United Kingdom

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WEB MAINTENANCE

BGST will be doing maintenance to the website on April 8-12. Please do not upload any assignments to Moodle during this time. To submit assignments during this time, please email them to assignments@bgst.edu.sg.

CHANGE IN AUDIT FEES

Beginning July 1, 2019, BGST Audit Fees will increase to \$120 per 1.5 credit module and \$240 per 3.0 credit module, respectively.

BGST ACCESS MEMBERSHIP

Beginning **July 1, 2020**, BGST will be introducing the BGST Access Membership. With your BGST Access Membership, you can access the entire BGST Library, benefiting from thousands of books, journals, e-books and more. This Membership will be mandatory for credit students and optional for audit students. Members may renew their annual membership online.

Fees

1. General Public \$25/year
2. Audit Students \$25/year
3. Credit Students \$35*/semester

*Mandatory for Credit Students. Includes administration, registration and technology fees.

Due to the generosity of our donors, we are able to absorb the above costs for 12-months. Thus, the BGST Access Membership Fee will only be in effect from **July 1, 2020** onwards. Fees will remain unchanged up to this point.



BGST RESEARCH PARTNERSHIP

BGST would like to thank those individuals who donated towards the BGST Research Scholarship at Tyndale House. We are grateful for the amount raised, which will provide, for 12 months, a room and desk at Tyndale House in Cambridge, England, for pastors, scholars and others who would like to take time to work on a book, plan a course, or complete a thesis. They will have access to an excellent in-house library, a communal kitchen and an international community of like-minded colleagues, all in the beautiful city of Cambridge.

Thank you again for making this partnership possible with your gifts.

Those who are interested in applying may apply for periods from 3 to 6 months (must apply 6 months in advance). Interested applicants may contact Dr Philip Satterthwaite at satterthwaitep@bgst.edu.sg.



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By Peter Grier

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By Craig Storti

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	A New Testament Walk With Oswald Chambers	Oswald Chambers Compiled By James R. Adair And Harry Verploegh.	Bible - New Testament - Meditations
	Is God Intolerant?: Christian Thinking About The Call For Tolerance	Daniel Taylor	Christian Ethics
	What Is Reformed Theology? : Understanding The Basics	Sproul, R. C. (Robert Charles)	Reformed Church - Doctrines
	12 Ways Your Phone Is Changing You	Reinke, Tony	Smartphones
	Souls In Transition: The Religious And Spiritual Lives Of Emerging Adults	Christian Smith Patricia Snell	Young Adults - Religious Life - United States

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