

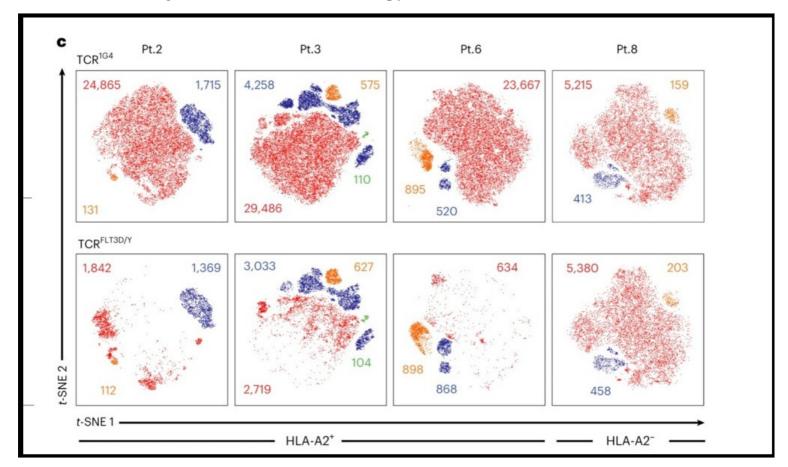
# || Medicine || New Immunotherapy Treatment For Leukaemia Possible ||



Il Thursday: October 05: 2023 Il lpha. Researchers have identified a novel immunotherapy for acute myeloid leukaemia:AML. Immune cells are programmed to recognise a mutation, found in leukaemia patients. The results provide hope for new and effective treatment for the most common form of leukaemia in adults. Blood cells are formed and matured in the bone marrow.

However, sometimes mutations or damage occur in the cells' genetic material. This can lead to uncontrolled growth of blood cells and improper maturation. AML is a type of acute blood cancer where the bone marrow gets overcrowded with such immature blood cells. "AML is a disease with a very poor prognosis. With standard treatment, one-third of patients have a five-year survival rate after diagnosis." Says Professor Johanna Olweus, who is a professor at the University of Oslo and

the Head of Department of Cancer Immunology at the Cancer Clinic at Oslo University Hospital and a world-leading researcher in immunotherapy.



"Immunotherapy has led to significant advances in the treatment of several types of cancer. However, there is currently no approved immunotherapy for AML." Professor Olweus says. "The exception is stem cell transplantation, which is a treatment with potentially life-threatening side effects. Many patients cannot tolerate this treatment and therefore cannot receive it. You, also, cannot find stem cell donors for all patients."

For immunotherapy to be effective, the immune cells need good therapeutic targets to attack. However, the targets should not be found on healthy cells, as they would, also, be attacked. Professor Olweus and her colleagues have now found that certain mutations in cancer cells, that can be attractive targets in AML.

"This provides hope that we can develop a new and effective treatment for acute myeloid leukaemia. The results are likely of relevance, also, for other types of cancer." Says Professor Olweus. Her research group at the University of Oslo and OUS, in collaboration with the groups of researcher Petter Woll and Professor Sten Eirik Jacobsen at Karolinska Institutet. Post-doctoral fellow Dr Eirini Giannakopoulou in Professor Olweus' group is the First Author on the article describing the results. PhD fellow Madeleine Lehander supervised by Woll and Jacobsen at Karolinska Institutet has had a central role as the Second Author. The study is published in the prestigious journal Nature Cancer.

All cancers are caused by mutations in the DNA. Thus, researchers are focused on mutations in the search for new treatment options for cancer. "Research in recent years has given us great hope that it will be possible to target immunotherapy to selected mutations. This is because mutations are specific for cancer cells and are a necessary part of cancer development." Professor Olweus says.

However, it is not so simple. So far, the results have been discouraging. "Almost, all mutations are unique to the individual cancer tumour and patient. Targeted treatment, must, therefore, be tailored to each individual patient."

"We, also, know that many mutations exists only in some cancer cells, which allows the other cancer cells to escape treatment. In addition, there are very few mutations, that have the ability to stimulate immune responses." She says. The researchers have identified a T-cell receptor, that recognises a shared mutation in AML

The goal of immunotherapy is to help the immune system protect the body against cancer development and to fight cancer. T-cells are part of this immune system. T-cell receptors are proteins, that are found on the surface of T-cells. They play a crucial role in recognising, activating and stimulating immune system to respond to threats, like viral infections.

This is where the researchers have made a breakthrough. Specifically, they have been able to identify a T-cell receptor, that can recognise a specific mutation, that is typical for acute myeloid leukaemia and shared between a sub-group of patients with AML.

"A gene, that is, often, mutated in this disease is called FLT3. Mutations in this gene can contribute to the rapid development of the disease. Using technology, that my group has developed, we have been able to identify a T-cell receptor, that recognises one mutation in FLT3." Professor Olweus says. The researchers noticed that there are some mutations, that are found in several AML patients. These mutations, shared among several patients, could be attractive therapeutic targets.

"The discovery is a bit like 'finding a needle in a haystack." Says Post-doctoral fellow Dr Eirini Giannakopoulou. The researchers equipped T-cells with the T-cell receptor through gene transfer. In this way, the T-cells were programmed to attack cancer cells with this particular mutation.

They were further able to show that the T-cell receptor is safe and that it does not react with normal cells, only with the mutation from the cancer cells. But how could the researchers test whether this T-cell receptor can be used in the treatment of leukaemia?

In collaboration with the groups of Woll and Jacobsen at Karolinska institutet, the researchers created a model for the disease, a tailored mouse model, that mimicked AML. Leukemic cells from patients were transplanted into mice. Then they tested whether T-cells equipped with the T-cell receptor were able to attack the cancer cells.

These results were very clear. In just two weeks, the treatment, effectively, eliminated mutated leukemic cells in the mice. The Study is a 'proof-of-concept' Study, where researchers test whether an idea can work in reality. This is important in order to proceed to clinical trials.

The aim in this Study was to see whether genetically modified T-cells, programmed to recognise mutations, could be an attractive treatment option for AML. "An important finding was that we could show that the programmed T-cells could, also, kill cells, that have characteristics of stem cells in leukaemia." Says phd fellow Madeleine Lehander from Karolinska Institutet.

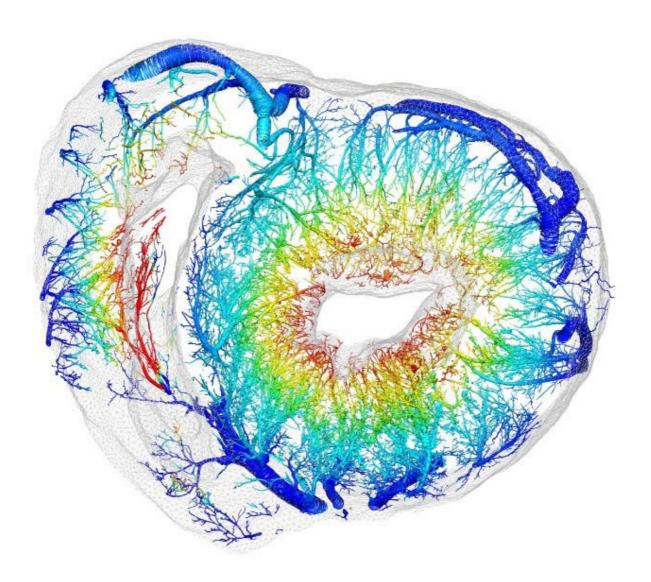
"This has been a fantastic collaboration, that has lasted for many years, where the groups complement each other's expertise perfectly." Professor Olweus says.

Caption: 01: Visualisation of blood cells from four leukaemia patients, from left to right, after treatment with TCR T-cell therapy targeting the mutation, lower row or control T-cells, upper row. The leukaemia cells in red are killed after a few hours, while various normal blood cells in orange, blue and green remain unaffected by the treatment. The blood from Patient 08 on the right is a control, that lacks a target for the TCR T-cells and the leukaemia cells are, therefore, not eliminated. Illustration by the researchers.

02: Postdoctoral fellow Eirini Giannakopoulou and Professor Johanna Olweus: Image: Fridtjof Lund-Johansen. :::ω:::

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The Image Caption: The Heart: Shortlisted In The BHF Reflections Of Research Competition 2016: Image: Simone Rivolo



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# **Humanicsxian Economics**



#### What Is Humanicsxian Economics

Say: I Carry the Infinities of Making All Beings Happy:

Say: I Commit to Organise the Largest Feast For All Humanity Where Each and Every Human Soul Sit at the Same Table of Liberty and Equality to Eat and Drink From the Bounties of This Mother Earth and of the Human Works and Labours:

Say: I Commit to An Economics That Is Clean Green Circular and Sustainable:

Say: I Commit to an Economics That Does No Harm to Anyone or Anything:

Say: I Commit to Establish an Economics That Is Founded on Moral Science So That Humanity Is Let to Be and Do Nothing But Humanity Naturale: Being and Doing an Infinity of Goodness Righteousness and Universal Harmony of Peace Unfolding Itself In By and With Social Morality of Civic Societies



And Further Say: I Commit to Found an Economics That Empowers the Entire Humanion With the Highest Degree of Education Continual and Life-Long Learning Development and Progression: Say: And Sovereignty Shall Be Returned to All Humanity Through the Direct Involvement Engagement and Participation of All Human Individual Beings Through Humanicsovics the Public Affairs Management System Run By All Citizens Working Together Without Political Parties: That Is a Human Enterprise in Humanicsovics Where Ownership Money and Their Powers and Prowess Have Been Eradicated and Replaced by Belongingship and That is Humanicsxian Economics: And Say: I Commit to Exist In By and With the High-Humanical Maxim: All-For-One and One-For-All: This Is Humanicxian Economics: This Is Why Regine Humanics Foundation Ltd and Regine Group of Publications Exist to Work and Take Forward The Philosophy Political Philosophy Political Economics and the Vision of Humanics to the Wider World and Wider Humanity For a Better Human Condition For All Humanity Across Mother Earth: One Humanity As One Humanion on One Mother Earth on One Sunnara on One Home Bay Milky Way Galaxy on One Universana: Humanity: We Are One: An Infinity Unfolding Itself: Thursday: June 25: 2020

# Humanicsxian Economics in Two Phases of Humanics Pre-Humanical Phase: Kapitalawnomics

Pre-Humanical Phase: Kapitalawnomics: Capitalism Is Brought Under the Sovereignty of the People and Re-architectured to Serve the People Under the Power and Prowess of the Rule of Law at All Times and Used to Develop Everything Towards Humanical Societies || At This Phase These Shall Become Reality: Right to Universal Natural Air || Right to Universal Natural Environment || Right to Universal Degree-Level Education || Right to Universal Balanced and Nutritional Food and Drink || Right to Universal Employment || Right to Universal Income || Right to Universal Home || Right to Universal Health || Right to Universal Social Care || For All Humanity Across the Earth Equate to Building-Block Foundational Human Rights: And the Entire Humanity Joining Together As All Individuals In a Humanion, Forming the First All-Humanity Sovereignty-Naturale Habitat-Body on Earth and on This Universe as the First Ever International and Universal All-Humanity State and Government for the Whole World as One Body With Its Legislature Executive Judiciary Financial-Judiciary Rule of Law Civic Service Compact and Its Own Central Bank and Its Own Currency That Is the New International Currency || This Phase Is Done Through and by Working Humanity Organising As Political Forces and Parties.

# **Humanical Phase**

Human Enterprise: Ownership Money and Their Powers and Prowess Are Eliminated and Replaced by Belongingship Whereby Humanity Reach Liberty and Equality and All Human Economics Endeavours Are Organised and Run Under Human Enterprise and the Whole Public Affairs Management Is Run and Conducted by Humanicsovics Whereby All Individual Humanity Work Together As Organised People Parliaments As Their Own High-Representatives: This Is Humanicsovics | | This Is What the World's Working and Non-Working Humanity on Poverty-Wage on Punishment-Social-Security on Destitution-Abandonment-No-Security and the Powerless and Homeless Humanity Must Rise to Fight For and Reject All Plastering Tinker-Works by Any Political Forces: This Is Why It Is Time to Rise As One and Unite and Organise to Begin Again: Where Are the Younger Generations: Because If We Humanity Have Any Future It Is In Your Hands Hearts Minds Souls Eyes and Vision: Believe: Humanity Naturale Is an Infinity Unfolding Itself and In Being and Doing Such Humanity Naturale We All Exist by the High-Humanical Maxim: All-For-One and One-For-All and With This Humanical Societies Appear All Across the Earth and They All Form a Grid of a Humanical Civilisation, Led and Run by All Humanity Working Together at the Highest of All Bodies: The International and Universal State and Government of the Entire Humanion

### What Are Building-Block Foundational Human Rights



Ask Your Political Leaders About Building-Block Foundational Human Rights and Ask Them About Humanics

## The Building-Block Foundational Human Rights

A: Absolute Right to Live in Clean, Healthy, Safe and Natural Environment

B: Absolute Right to Breathe Natural, Fresh, Clean and Safe Air

C: Absolute Right to Necessary Nutritional Balanced Food and Drink

D: Absolute Right to Free Medical Care at the Point of Need

E: Absolute Right to an Absolute Home

F: Absolute Right to Free Degree-Level Education and Life Long Learning

G: Absolute Right to Guaranteed Social Care

H: Absolute Right to a Universal Income

I: Absolute Right to a Job

J: Absolute Right to Dignified Civic and Human Funeral Paid Through by Universal Income

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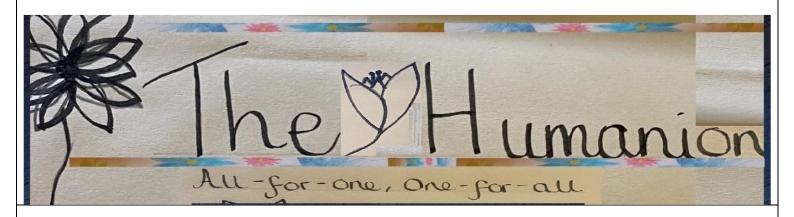
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