

LEAD THE RACE
 Comprehensive **flow cytometry** solutions
 designed to accelerate your work




[Learn More](#)

TRENDING (/TRENDING)

APR 24, 2018 01:19 PM PDT

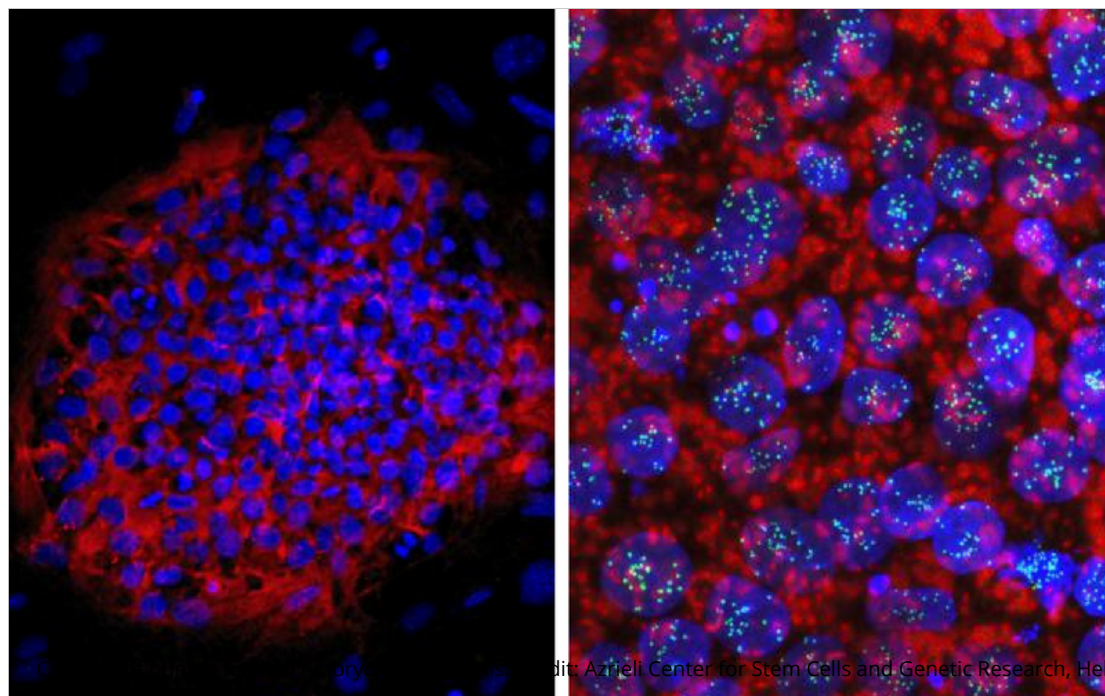


An Atlas of the Human Genome

WRITTEN BY: Kara Marker (/profile/114136)

3 👍 2 👤 108 👁

Scientists from the Hebrew University of Jerusalem want to identify individual genes responsible for specific diseases. This goal inspired their new *Nature Cell Biology* (<http://dx.doi.org/10.1038/s41556-018-0088-1>) study that focused on CRISPR-Cas9 gene editing technology and embryonic stem cells.



Embryonic stem cells. Credit: Azrieli Center for Stem Cells and Genetic Research, Hebrew University of Jerusalem

(https://assets.labroots.com/_public/_files/system/ck/trending/Untitled%20design_8b0451bfd446258776cd5f024ff46d91.png)

Why embryonic stem cells? These are stem cells derived from embryos, which means that they have the potential to differentiate, or turn into, any type of adult cell in the human body. This potential made them a unique player in the researchers' quest to create an atlas of functions in the human genome.

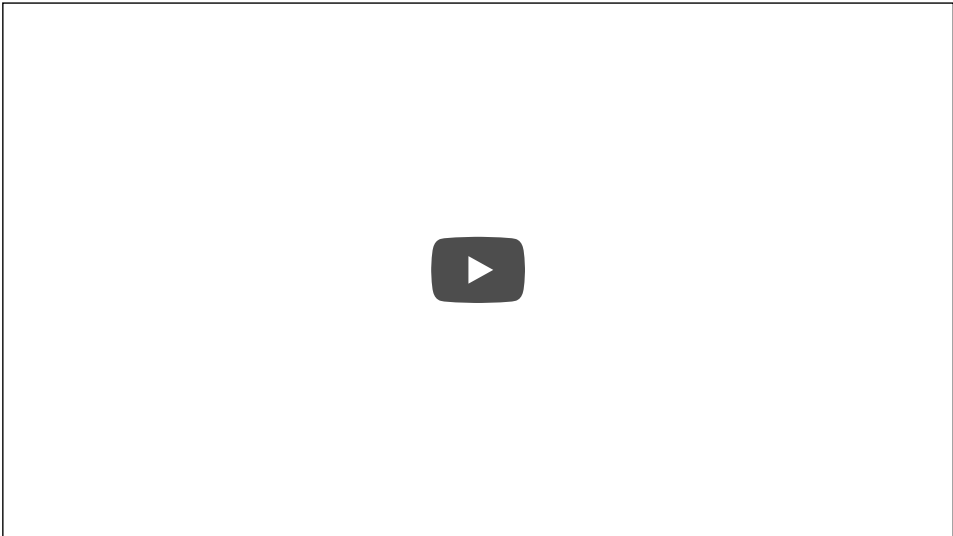
"This study creates a new framework for the understanding of what it means to be an embryonic stem cell at the genetic level," explained lead author Dr. Atilgan Yilmaz, PhD. "The more complete a picture we have of the nature of these cells, the better chances we have for successful therapies in the clinic."

Yilmaz's study consisting of analyzing more than 180,000 distinct mutations in the human genome. The analysis was made possible by using CRISPR-Cas9 gene editing technology paired with a new type of embryonic stem cells that contain just one copy of the human genome, as opposed to the normal two (one from the mother, one from the father). A single copy of the human genome makes gene editing more efficient.

From the analysis, researchers found that just nine percent of genes from the human genome are required for the growth and survival of human embryonic stem cells. And only five percent inhibit human embryonic stem cell growth. Among these genes are a small population that are "uniquely essential for the survival of human embryonic stem cells but not other cell types." Researchers believe these genes to prevent embryonic stem cells from becoming cancerous or differentiating into adult cell types.


In addition to learning about the role of human genes in embryonic stem cell function, they explored genes essential for hereditary disorders and cancer during early embryonic development.




"This gene atlas enables a new functional view on how we study the human genome and provides a tool that will change the fashion by which we analyze and treat cancer and genetic disorders," explained senior author Professor Nissim Benvenisty, MD, PhD.



Sources: [NIH Stem Cell Information](https://stemcells.nih.gov/info/basics/3.htm) (https://stemcells.nih.gov/info/basics/3.htm), [The Hebrew University of Jerusalem](https://www.eurekalert.org/pub_releases/2018-04/thuo-sga042318.php) (https://www.eurekalert.org/pub_releases/2018-04/thuo-sga042318.php)


ABOUT THE AUTHOR



Kara Marker (/profile/114136)  (<https://www.facebook.com/kara.marker.5>)  (<https://twitter.com/ScienceKara>)  (<https://www.linkedin.com/pub/kara->

I am a scientific journalist and enthusiast, especially in the realm of biomedicine. I am passionate about conveying the truth in scientific phenomena and subsequently improving health and public awareness. Sometimes scientific research needs a translator to effectively communicate the scientific jargon present in significant findings. I plan to be that translating communicator, and I hope to decrease the spread of misrepresented scientific phenomena! Check out my science blog: ScienceKara.com.

YOU MAY ALSO LIKE




(/trending/cardiology/7593/erectile-dysfunction-warning-sign-heart-disease)

Cardiology

DEC 18, 2017

Erectile Dysfunction Warning Sign for Heart Disease (/trending/cardiology/erectile-dysfunction-warning-sign-heart-disease)

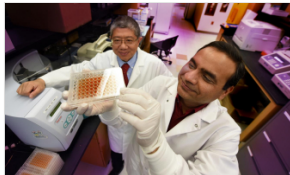


(/trending/immunology/7764/experts-provide-update-drugs-eczema)

Immunology

JAN 07, 2018

Experts Provide Update on Drugs for Eczema (/trending/immunology/experts-provide-update-drugs-eczema)





(/trending/immunology/7865/identifying-causative-genes-type-diabetes)


Immunology

JAN 19, 2018

Identifying Causative Genes for Type 2 Diabetes (/trending/immunology/identifying-causative-genes-type-diabetes)







(/trending/clinical-and-molecular-dx/8150/onsite-imaging-services-olympic-athletes-injuries)

Clinical & Molecular DX

FEB 27, 2018

Onsite Imaging Services for Olympic Athletes with Injuries

(/trending/cancer/8632/artificial-mole-tattoo-cancer-detection)

Cancer

APR 25, 2018

Artificial Mole Tattoos for Cancer Detection

(/trending/clinical-and-molecular-dx/8635/dementia-unnoticed-hospitals)

Clinical & Molecular DX

APR 25, 2018

Why is dementia going unnoticed in hospitals?

Loading Comments...

SEARCH

Search Trending Articles

Q

TRENDING CATEGORIES

-  Health & Medicine (/trending/health-and-medicine)
-  Clinical & Molecular DX (/trending/clinical-and-molecular-dx)
-  Immunology (/trending/immunology)
-  Cardiology (/trending/cardiology)
-  Cancer (/trending/cancer)
-  Cell & Molecular Biology (/trending/cell-and-molecular-biology)
-  Genetics & Genomics (/trending/genetics-and-genomics)
-  Microbiology (/trending/microbiology)
-  Neuroscience (/trending/neuroscience)
-  Plants & Animals (/trending/plants-and-animals)
-  Earth & The Environment (/trending/earth-and-the-environment)
-  Space & Astronomy (/trending/space)
-  Chemistry & Physics (/trending/chemistry-and-physics)
-  Technology (/trending/technology)
-  Cannabis Sciences (/trending/cannabis-sciences)
-  Drug Discovery (/trending/drug-discovery)
-  Infographics (/trending/infographics)

UPCOMING WEBINARS (/WEBINARS)



MAY 02, 2018

Five steps for publication-quality immunohistochemistry... (/webinar/five-steps-publication-quality-immunohistochemistry-imaging)



MAY 03, 2018

Fecal Lactoferrin Measurements in Clinical Practice (/webinar/fecal-lactoferrin-measurements-clinical-practice)



MAY 03, 2018

Performing ChIP Using Low Amounts of Frozen Mouse Brain... (/webinar/chip-mouse-brain-tissue-investigation-stress-alters-5hmc-tf-binding)



MAY 07, 2018

Managing CMV Infection and Realizing Operational Efficiencies... (/webinar/clinical-impact-missing-cmv-viremia-hsct)



MAY 16, 2018

Strategies for High-Titer Protein Expression Using the... (/webinar/expicho-expi293)



MAY 16, 2018

ExpiCHO High-Efficiency Protein Expression System: Ultra-high... (/webinar/expicho)

UPCOMING VIRTUAL EVENTS (/VIRTUAL-EVENTS)



MAY 09, 2018 6:00 AM PDT

Genetics and Genomics 2018 (/virtual-event/genetics-genomics-2018)



MAY 16, 2018

Gibco ExpressionWorld 2018 (/virtual-event/gibco-expressionworld-2018)



MAY 30, 2018 6:00 AM PDT

Lab Automation 2018 (/virtual-event/lab-automation-2018)



JUN 20, 2018 6:00 AM PDT

Precision Medicine 2018 (/virtual-event/precision-medicine-2018)



SEP 12, 2018 6:00 AM PDT


Microbiology and Immunology 2018 (/virtual-event/microbiology-immunology-2018)





SEP 26, 2018 6:00 AM PDT


Cell Biology 2018 (/virtual-event/cell-biology-2018)


SCIENCE T-SHIRTS (/STORE)

- 

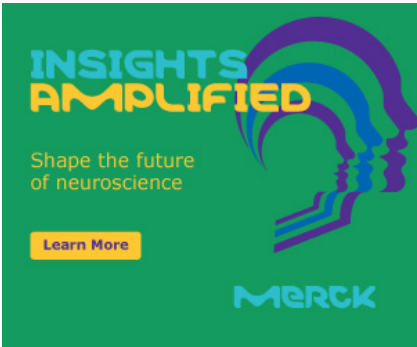
Genetics - Mutations Happen Men's T-Shirt (/store/products/genetics-mutations-happen-men-s-t-shirt)
- 

Fight Cancer Kid's T-Shirt (/store/products/fight-cancer-kid-s-t-shirt)
- 

Scientists Have Big Brains Kid's T-Shirt (/store/products/scientists-have-big-brains-kid-s-t-shirt)
- 

Trust Me I'm a Scientist Kid's T-Shirt (/store/products/trust-me-i-m-a-scientist-kid-s-t-shirt)
- 

Marie Curie Trust Me I'm a Scientist Kid's T-Shirt (Glow in the Dark) (/store/products/marie-curie-trust-me-i-m-a-scientist-kid-s-t-shirt-glow-in-the-dark)



(https://pubads.g.doubleclick.net/gampad/jump?iu=/6834964607/standard_300x250&sz=300x250&c=132334999&d_imp=1&d_imp_hdr=1)

Let's Talk Science. Let's Talk Medicine.



The leading scientific social networking website and producer
of educational virtual events and webinars.

[About Us \(/about-us\)](#)

[The Team \(/the-team\)](#)

[Contact Us \(/contact-us\)](#)

[Careers \(/careers\)](#)

[Advertise \(/advertise\)](#)

[Support \(/support\)](#)

[Blog \(http://blog.labroots.com\)](http://blog.labroots.com)

[Press Room \(/press\)](#)

[T-Shirt Store \(/store\)](#)

[Gift Card Balance \(/store/gift-card/balance-checker\)](#)

[RSS \(/rss\)](#)

[Continuing Education \(/continuing-education-credits\)](#)

[Scholarships \(/scholarships\)](#)

[Posters \(/posters\)](#)

[Order Policy \(/order-policy\)](#)

[Shipping Policy \(/shipping-policy\)](#)

[Return Policy \(/return-policy\)](#)

[Privacy Policy \(/privacy-policy\)](#)

[Terms and Conditions \(/terms-and-conditions\)](#)

[User Agreement \(/user-agreement\)](#)

[Copyrights \(/copyrights\)](#)



(<https://www.facebook.com/labroots>, <https://twitter.com/labroots>, <https://www.linkedin.com/company/labroots>, <https://www.pinterest.com/labroots>, <https://www.instagram.com/labroots>, <https://plus.google.com/+LabRootsInc>, <https://www.youtube.com/user/LabRoots>)

© 2008-2018 LabRoots Inc.