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During the passage from the shore to marine life penguins acquire a tremendous capability of survival in cold waters and experience corresponding morphological alterations. These are results of gene expression changes.[1]

[1] Teulier, L. et al. Proc Biol Sci. 279, 2464–2472 (2012).

The difference comes from changes in gene expression

Gene expression profile changes play significant role in life cycles of many organisms including penguins.

An essential life step for penguins is a passage from shore to marine life, a step towards nutrition independence. Penguins acquire exceptional capability to survive in cold water and morphological alterations happen. At the time of departure to sea, the thick down of juveniles is replaced by waterproof feathers (view photo). These differences come from changes in gene expression profile.

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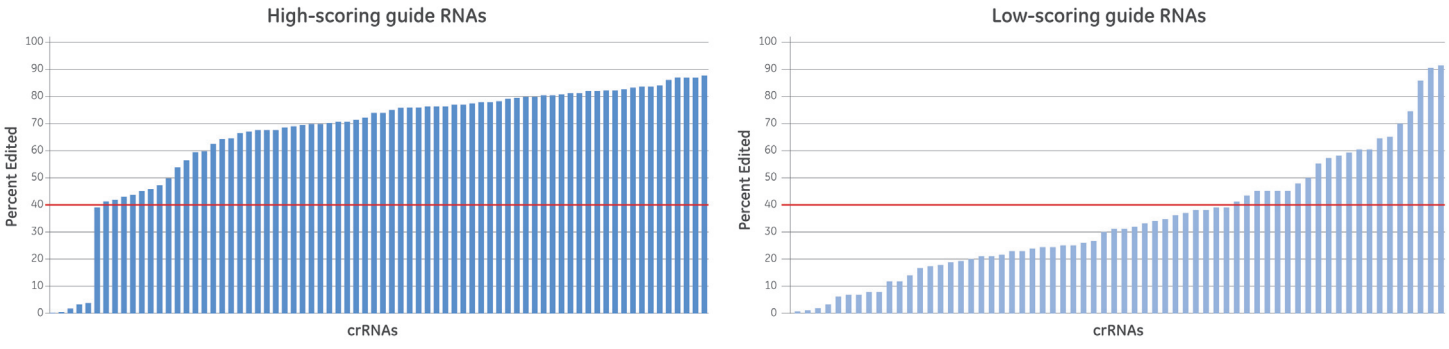

HEK293T-CAG-Cas9 cells were transfected with either high-scoring or low-scoring crRNAs (50 nM crRNA:tracrRNA) using DharmaFECT 1 transfection reagent (0.25 µL/well) in 96-well format. Gene editing efficiencies were determined using next-generation sequencing. 93% of the top 10 high-scoring crRNAs targeting ten different genes have > 40% indel formation and only 33% of the 10 lowest scoring designs have > 40% indel formation.

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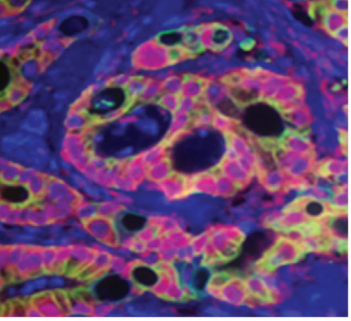

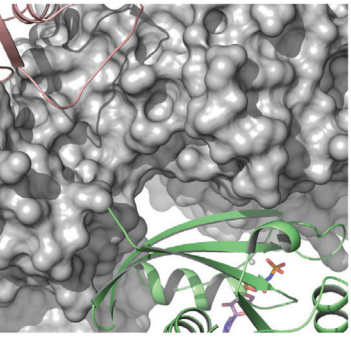

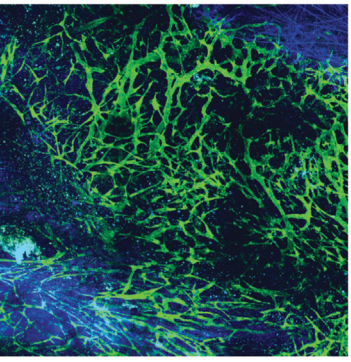

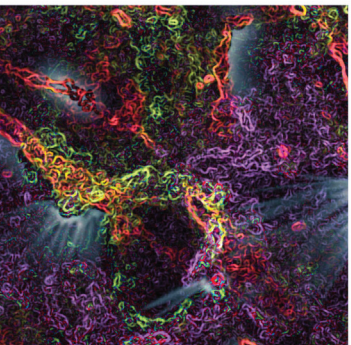

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AACR Precision Medicine Series: Targeting the Vulnerabilities of Cancer
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Engineering and Physical Sciences in Oncology
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June 25-28, 2016
Boston, MA

Fifth JCA-AACR Special Joint Conference on the Latest Advances in Hematological Cancer Research: From Basic Science to Therapeutics
Conference Co-Chairpersons: Takuro Nakamura, Issay Kitabayashi, Shigeru Chiba, Jonathan D. Licht, Ross L. Levine, and Catriona Jamieson
July 13-15, 2016
Urayasu, Japan

EORTC-NCI-EMA-AACR International Conference on Innovation and Biomarkers in Cancer Drug Development
Conference Co-Chairpersons: Denis A. Lacombe and John W. Martens
September 8-9, 2016
Brussels, Belgium

Colorectal Cancer: From Initiation to Outcomes
Conference Co-Chairpersons: Ernest T. Hawk, Steven H. Itzkowitz, Kenneth W. Kinzler, and Johanna W. Lampe
September 17-20, 2016
Tampa, FL

Ninth AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved
Conference Co-Chairpersons: Rick A. Kittles, Folakemi T. Odedina, Jeffrey N. Weitzel, and Jun J. Yang
September 25-28, 2016
Fort Lauderdale, FL

Tumor Immunology and Immunotherapy
Conference Co-Chairpersons: James P. Allison, Pamela S. Ohashi, Antoni Ribas, and Ton Schumacher
October 20-23, 2016
Boston, MA

Translational Control of Cancer: A New Frontier in Cancer Biology and Therapy
Conference Co-Chairpersons: Jennifer A. Doudna, Frank McCormick, Davide Ruggero, and Nahum Sonenberg
October 27-30, 2016
San Francisco, CA

DNA Repair: Tumor Development and Therapeutic Response
Conference Co-Chairpersons: Robert G. Bristow, Maria Jasin, and Theodore S. Lawrence
November 2-5, 2016
Montreal, Quebec, Canada

New Horizons in Cancer Research: Delivering Cures Through Cancer Science
Conference Co-Chairpersons: José Baselga, and Scott A. Armstrong
November 2-5, 2016
Shanghai, P.R. China

EORTC-NCI-AACR Molecular Targets and Cancer Therapeutics Symposium
November 29-December 2, 2016
Munich, Germany

San Antonio Breast Cancer Symposium
Conference Co-Directors: Carlos L. Arteaga, Virginia G. Kaklamani, and C. Kent Osborne
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Learn more and register at
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Session Topics:

- Pleiotropy and Epistasis of Variants Involved in Disease
- Finding the Causative Variant(s)
- Connection between Selection and Disease
- Defining the Functional Elements in the Human Genome
- Human History, Migration and Evolution
- Selection and Population Genetics
- Complex Disease and Genetic Variation
- Structural Variation

CONFIRMED SPEAKERS
(as of March 11, 2016):

Jessica Alfoldi
Cynthia M. Beall
Gill Bejerano
Jada BennTorres
Barak Alon Cohen
Evan E. Eichler
Xavier Estivill
Michel A. J. Georges
Ed Green
William J. Greenleaf
Iiris Hovatta
Elinor Karlsson
Tuuli Lappalainen
Ben Lehner
Nuria Lopez-Bigas
Tomas Marques-Bonet
Svante Pääbo
Len Pennacchio
Joseph K. Pickrell
Luis Quintana-Murci
Heidi Rehm
Jonathan Sebat
Michael Snyder
Nicole Soranzo
Sarah A. Tishkoff
Peter M. Visscher*
Cisca Wijmenga
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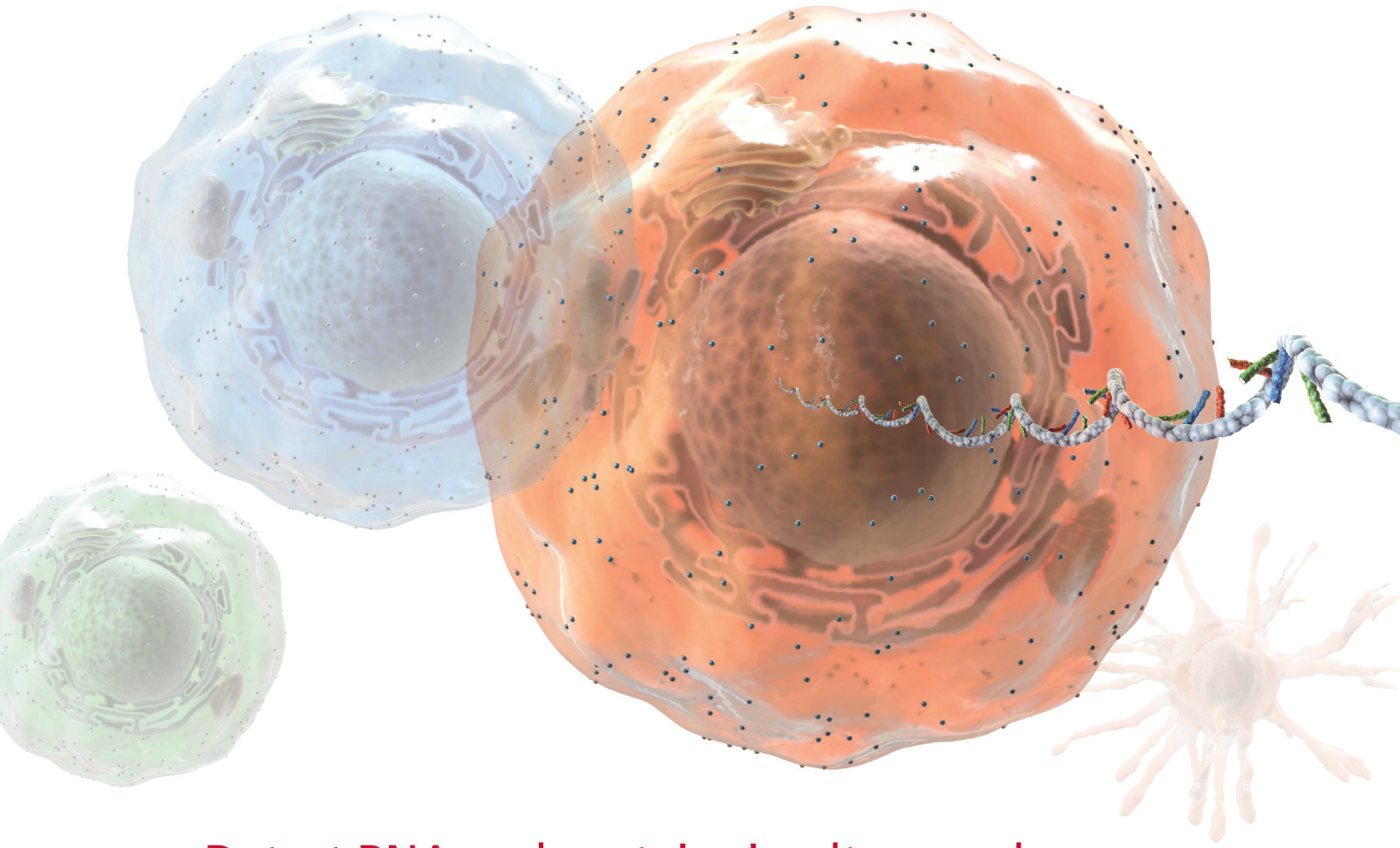

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