AlphaFold3 Transparency and Reproducibility

Stephanie A. Wankowicz, UCSF, mullane.stephanie@gmail.com, 0000-0002-4225-7459
Pedro Beltrao, ETH, pedrobeltrao@gmail.com, 0000-0002-2724-7703
Benjamin Cravatt, Scripps Research, cravatt@scripps.edu, 0000-0001-5330-3492
Roland Dunbrack, Fox Chase Cancer Center, roland.dunbrack@gmail.com, 0000-0001-7674-6667
Anthony Gitter, UW-Madison, gitter@biostat.wisc.edu, 0000-0002-5324-9833
Kresten Lindorff-Larsen, University of Copenhagen, lindorff@bio.ku.dk, 0000-0002-4750-6039
Sergey Ovchinnikov, MIT, so3@mit.edu, 0000-0003-2774-2744
Nicholas Polizzi, DFCI/HMS, NicholasF_Polizzi@dfci.harvard.edu, 0000-0002-1779-8907
Brian K. Shoichet, UCSF, bshoichet@gmail.com, 0000-0002-6098-7367
James S. Fraser, UCSF, jfraser@fraserlab.com, 0000-0002-5080-2859

To the Editors of Nature,

The publication of AlphaFold2 was a breakthrough moment for structural biology. Its impact has been far-ranging. Structure predictions for individual proteins opened new avenues for understanding biological systems and small molecule drug discovery. Large-scale prediction studies enabled evolutionary analyses and genetic variant interpretations. The open code was extended and modified for new methods and applications in protein design and protein-protein assembly prediction. These examples, among many, demonstrate how subsequent research and benchmarks have been made possible because the code and models were open and downloadable.

For these reasons, we were disappointed with the lack of code, or even executables accompanying the publication of AlphaFold3 in Nature[a]. Although AlphaFold3 expands AlphaFold2's capacities to include small molecules, nucleic acids, and chemical modifications, it was released without the means to test and use the software in a high-throughput manner. This does not align with the principles of scientific progress, which rely on the ability of the community to evaluate, use, and build upon existing work. The high-profile publication advertises capabilities that remain locked behind the doors of the parent company.

In this publication, several deviations from our community's standards stand out. First, the absence of available code compromises peer review, a cornerstone of scientific publication and a standard typically upheld by journals. Indeed, one of us (RD) was a reviewer, and despite repeated requests, he was not given access to code during the review[b]. Second, the model's limited availability on a hosted web server, capped at ten predictions per day, restricts the scientific community's capacity to verify the broad claims of the findings or apply the predictions on a large scale. Specifically, the inability to make predictions on novel organic molecules akin to chemical probes and drugs, one of the central claims of the paper, makes it impossible to test or use this method. Finally, the pseudocode released will require months of effort to turn into workable code that approximates the performance, wasting valuable time and resources. Even

if such a reimplementation is attempted, restricted access raises questions about whether the results could be fully validated.

Computational costs of machine learning approaches are becoming prohibitive for academic institutions, owing to the high costs of training the models, leaving much computational research and potential breakthroughs in the hands of for-profit companies. While companies have the right to capitalize on their innovations, using the imprimatur of academic publications without the possibility of reproducing the results, far less building on them, subverts the enterprise. The amount of disclosure in the AlphaFold3 publication is appropriate for an announcement on a company website (which, indeed, the authors used to preview these developments), but it fails to meet the scientific community's standards of being usable, scalable, and transparent.

This moment can motivate our community to raise the bar of openness and transparency to accelerate scientific progress. When journals fail to enforce their written policies about making code available to reviewers[1] and alongside publications[2], they demonstrate how these policies are applied inequitably and how editorial decisions do not align with the needs of the scientific community. While there is an ever-changing landscape of how science is performed and communicated, journals should uphold their role in the community by ensuring that science is reproducible upon dissemination, regardless of who the authors are.

AI approaches now directly impact biological discovery and human health. Fully realizing their potential will require not only technical breakthroughs but also open and collaborative efforts to build on others' findings, as is foundational in all scientific research.

1)https://web.archive.org/web/20240511023627/https://www.nature.com/nature-portfolio/editorial-policies/reporting-standards

2)https://web.archive.org/web/20240511023855/https://www.nature.com/nature/for-authors/initial-submission

a) This letter has been endorsed by over 650 scientists globally representing academia, industry, and government (https://zenodo.org/records/11192369).

b) After we posted this letter, and after >500 signatures were collected, AlphaFold3 authors from DeepMind and Isomorphic Labs announced via X that they would release the model including weights for academic use within six months.

Endorsers as of 2:00PM PST 5/16/2024:
Aakarsh Vermani, UC Berkeley
Aaron Bogutz, University of British Columbia
Aashish Manglik, University of California, San Francisco
Aatmik Mallya, Yale
Abantika Pal, UCSF

Abdelrahman Siam, Western University
Abdullah Al Nahid, University of Southern California
Abdurrahman Olğaç, Gazi University
Adam Graves, Concordia University
Adam J Middleton, University of Otago, New Zealand
Adam Konopelski, Adam Konopelski
Adam Y. He, Cornell University
Adil Atahan Atik, Adil Atahan Atik
Adrian Borucki, Genotic
Adrian Roitberg, University of Florida
Adrian W Lange, A-Alpha Bio
Adrien Schahl, KTH Royal Institute of Technology
Ah-Ram Kim, Harvard Medical School
Ahmed Adel Aboushanab , The American University in Cairo (AUC) biology department
Ahmed Mustafa Kamel, Kyushu Institute of Technology, Japan
Airy Sanjeev, Linköping universiteit
Ajasja Ljubetič, National Institue of Chemistry, Slovenia
Ajaykumar Reddy Ankinapalli, Student
Aji Palar, UCSF
Akash Bahai, NTU Singapore
Akshay Chauhan, IISER Pune
Akshay N, New York
Alan Fersht, University of Cambridge
Alan Grossfield, University of Rochester Medical Center
Albert Thor Thorhallsson, Technical University of Denmark
Aled Edwards, Structural Genomics Consortium
Aled Edwards, Structural Genomics Consortium
Alena Khmelinskaia, Ludwig Maximilian University of Munich
Alex Guseman, Department of Chemistry and Biochemistry, University of California San Diego
Alex J. Noble, SEMC, NYSBC
Alex Kentsis, Memorial Sloan Kettering Cancer Center
Alexander B. Long, UCSF
Alexander M. Brown, Brown University
Alexander Schug, Forschungszentrum Jülich
Alexandra Salazar, Scripps Research
Alexandre Bonvin, Utrecht University
Alexandros Bousios, University of Sussex
Alexandru Dumitrescu, Aalto University
Alexis Verger, CNRS
Alfonso Valencia, ICREA and Barcelona Supercomputing Center
Alfredo Andere, LatchBio
Alireza Hashemi, MSc Student, Biophysics Institute of Biochemistry and Biophysics, University of Tehran
Althea Hansel-Harris, Scripps Research

Amelie Stein, University of Copenhagen
Amiel Abettan, Institut Pasteur
Amine mosbah, Enmv sidi thabet tunisia
Amit Choudhary, BWH/HMS/Broad Institute
Amitesh Badkul, Graduate center, CUNY
Ammar Danazumi, King Abdullah University of Science and Technology
Amy Keating, MIT
Ana Luisa Carvalho, UCIBIO-NOVA FCT
Anar Rzayev, KAIST
Anastasios Galanis, University of Cambridge
Anastassios C. Papageorgiou, University of Turku, Finland
André Nicolás León, The Scripps Research Institute
Andrea Fossati, Karolinska Institute / SciLifeLab
Andrea Mariani, European Institute of Oncology Milan
Andrea Pasquadibisceglie, KTH Royal Institute of Technology
Andrea Thorn, Universität Hamburg
Andrea Zaliani, Fraunhofer Inst
Andreas Bender, University of Cambridge
Andreas F. Tillack, Scripps Research
Andreas Tiffeau-Mayer, University College London
Andrei Sova, University of British Columbia
Andrej Sali, University of California, San Francisco
Andrew C. Kruse, Harvard Medical School
Andrew McShan, Georgia Institute of Technology
Andrew Morin, Harvard Medical School
Andrew Powers, Unveristy of Oregon
Andrew Ward, Scripps Research
Andrey Parshin, Industry
Andrey Poletayev , University of Oxford
Anjan Venkatesh, University College Dublin
Anna Kravchenko, Utrecht University
Anna Panchenko, Queen's University
Anshul Kundaje, Associate Professor, Genetics, Computer Science, Stanford University
Anthony Kigondu, Machine Learning Engineer
Anthony T Pulvino, Northwestern University
Anton Goloborodko , IMBA
Anton Khmelinskii, Institute of Molecular Biology (IMB), Mainz Germany
Antonis Polykratis, Self
Antonius P.A. Janssen, PhD., Leiden University, the Netherlands
Anuj Kumar, Dalhousie University, Halifax, NS, Canada
Arash Bagherabadi, Department of Biology, Faculty of Sciences, University of Mohaghegh
Ardabili, Ardabil 5619911367, Iran
Arash Sadri, UCSF and Lyceum Scientific Charity
archiesteviegordie , archiesteviegordie

Ari Zeida, Facultad de Medicina, Universidad de la República, Uruguay
Arian R. Jamasb, Prescient Design, Genentech
Arne Elofsson , Stockholm University
Arnout Voet, KU Leuven
Arockiasamy S, Reliance industries Ltd
Arthur Zalevsky, UCSF
Ashish Kumar Kok, Student
Atabey Ünlü, Hacettepe University
Atul Deshpande, JHU
Audrey P. Gasch, University of Wisconsin-Madison
Axel Brunger, Stanford University
Ayixon Sánchez Reyes, Microbiological Observatory
AYRTON BRENO PIMENTA LISBOA, Federal University of Minas Gerais - Brazil
Azucena Lopez Lopez, IBT
Bailey J. Schultz, Department of Microbiology, Harvard Medical School
Balyn Zaro, UCSF
Baptiste Roelens, Gustave Roussy
Barak Raveh, Hebrew University of Jerusalem
Bart Westerman, PhD, Amsterdam UMC
Baylen Ravenscraft , IUSM
Begoña Aguado Orea, Consejo Superior de Investigaciones Cientificas (CSIC)
Belinda Zou Li, MIT
Ben Lehner, Wellcome Sanger Institute
Ben Morris, Harvard medical school
Bendik Furunes, NTNU
Benjamin Barad, OHSU
Benjamin Bardiaux, Institut Pasteur, Department of Structural Biology and Chemistry, CNRS
UMR 3528, Paris, France
Benjamin Haibe-Kains, University of Toronto
Benjamin Pugh, Vivint
Benjamin Weekley, PhD, Icahn School of Medicine at Mount Sinai
Bill Schief, Moderna, Inc. and Scripps Research
Birte Höcker, Bayreuth University
Bishal Thapa , MIT
Biswanath Saha, Department of developmental neuroscience, Kyushu University, Japan
Björn Brembs, Universität Regensburg
Björn Wallner, Linköping University
Blake R. Peterson, The Ohio State University
Blake T. Riley, unaffiliated
Bora Banjanin, Shape Therapeutics
Bram Mylemans, University of Bristol
Brandon Tran, UCLA
Brenda A. Schulman, Max Planck Institute of Biochemistry
Brenda A. Schulman, Max Planck Institute of Biochemistry

Brett Collins, The University of Queensland
Brian Ferguson, University of Cambridge
Brian G. Fox, University of Wisconsin-Madison
Brian Kuhlman, University of North Carolina at Chapel Hill
Brian Pierce, University of Maryland
Bruce Lichtenstein, Centre for Enzyme Innovation, University of Portsmouth, UK
Bruce R. Donald, Ph.D., Duke University & Duke University, Medical Center
Bruno Emanuel Correia, Ecole Polytechnique Federale de Lausanne
Bryan Briney, Scripps Research
Bryan J. Lunt, Late of University of Illinois, Urbana-Champaign
Bryce Johnson, UW-Madison
Büşra Savaş, Dokuz Eylul University, Izmir Biomedicine and Genome Center
Calder Ellsworth , Tulane University
Caleb A Lareau, Computational and Systems Biology, Memorial Sloan Kettering
Calogero Carlino, Vita-Salute San Raffaele University
Cameron Mura, Univ of Virginia, School of Data Science
Camillo Sherif, Dept. of Neurosurgery, Karl Landsteiner Private University for Health Sciences
Carlos Acevedo-Rocha , Technical University Denmark
Carlos Albors, UC Berkeley
Carol Chen, BC Cancer
Caroline Lynn Kamerlin, Georgia Institute of Technology
Carolyn Bertozzi, Stanford University and HHMI
Cas Blaauw, VIB-KU Leuven and Hubrecht Institute
Casey S. Greene, University of Colorado School of Medicine
Catherine Kuhn, University of California, San Francisco
Catherine L Drennan, MIT
Catherine Mia Schöfmann, Jülich Research Center (PGI-15)
Cecilia Blikstad, Uppsala University
Cesar A. Ponce Diego, School of Chemistry, UNAM
Cesar A. Ramirez-Sarmiento, Pontificia Universidad Catolica de Chile
Chaitan Khosla, Stanford University
Chang Liu, UC Irvine
Chao Hou, Columbia U
Charlie Clark, University of Oxford
Chris Sander, Harvard Medical School
Chris Thorpe, EBI, UK
Chris Waudby, UCL School of Pharmacy
Christian B. Macdonald, UCSF
Christian Bache Billesbølle, UCSF
Christine Jacobs-Wagner, Stanford
Christopher A. Miller, Washington University in St Louis
Christopher Wilson , Prime Medicine
Christopher Zerio, Scripps Research
Claude Gronfier, Inserm (French NIH), France

Claudio Mirabello, Linköping University
Clemens Grimm, University of Wuerzburg
Colby Agostino, The Wistar Institute / University of Pennsylvania
Colby T. Ford, University of North Carolina at Charlotte
Colin Dewey, University of Wisconsin–Madison
Colin Jackson, Australian National University
Collin Aldaibis , Research enthusiast
Constanza Enriquez Toledo , School of Chemistry
Cristina Genoveva Bodnari , Self
Cynthia Wolberger, Johns Hopkins University School of Medicine
Cyrus Mazidi , Fox Chase Cancer Center
Dakota Y. Hawkins, PhD, FogPharma
Dalibor Košek, IPHYS CAS
Damiano Sgarbossa, EPFL
Dan Brown, WEHI
Dan Herschlag, Stanford University
Daniel Asarnow, University of Washington
Daniel Beiting, University of Pennsylvania
Daniel Buchan, University College London
Daniel Eriksson , Australian Synchrotron
Daniel Guion, UCLA Department of Chemistry & Biochemistry
Daniel J. Sprague, MD, PhD, Medical University of South Carolina
Daniel Keedy, CUNY ASRC
Daniel Kracher, Graz University of Technology
Daniel MacArthur, Centre for Population Genomics, Garvan Institute of Medical Research
Daniel S Macpherson, None
Daniel Whettam, Bristol University
Danny Kim, KAIST
Dat Duong, National Institutes of Health
Dauchez Manuel, University of Reims
David A Knowles, Columbia University & New York Genome Center
David A. C. Beck, University of Washington
David Abia Holgado, CSIC
David Aragão , Diamond Light Source
David Baldischwieler, Universität Kassel (Germany)
David Briggs, The Francis Crick Institute
David C. Reetz, University of Idaho
David Eisenberg, UCLA
David Gfeller, University of Lausanne
David Kuster, Max Planck Institute of Molecular Cell Biology and Genetics
David LECONTE, r/machinelearning
David M Dranow, Structural Biology
David Mellor, Center for Open Science
David-Paul Minde , Helmholtz Munich

Deepak G M, Independent Researcher
Demetres D Leonidas, University of Thessaly
Derek Logan, Lund University
Derek Lowe, Author, "In the Pipeline"
Đesika Kolarić, Helmholtz Munich, Technical University Munich
Di Tang, Lund University
Didier Devaurs, University of Edinburgh
Diego E. Kleiman , University of Illinois Urbana-Champaign
Diego Javier Zea, Université Paris-Saclay
Dierk Niessing, Ulm University & Helmholtz Munich, Germany
Dieter S. Hoffmann, Leipzig University
Dina Listov, Weizmann Institute of Science
Ditlev Egeskov Brodersen, Aarhus University, Denmark
Doeke Hekstra, Harvard University
Dominique MIAS-LUCQUIN, Université de Lorraine
Dorien Pastoors, Dept. of Hematology, Erasmus MC
Dr Tibor Auer, The Rosalind Franklin Institute, Harwell Campus, Didcot, OX11 0QX
Dr. Nicolai Montua, Bielefeld University
Dren Fazlija, L3S Research Center
Drew McArthur, CU Boulder
Dror Noy, Migal-Galilee Research Institute
Dylan Powell, Petition Signer
Eduard Porta-Pardo, Josep Carreras Leukaemia Research Institute (IJC)
Eduardo Vieira de Souza, Salk Institute for Biological Studies
Edward Marcotte, University of Texas at Austin
Edward Wallace, University of Edinburgh
Einar Halldórsson, DTU
Elena Conti, Max Planck Institute of Biochemistry, Munich, Germany
Eli Draizen, UCSF
Elliot Bailey, CharmTx
Elodie Laine, Sorbonne University
Elvis Martis, US2B,. Nantes University
Emad Mostaque, Schelling AI
Emad Uddin, Imperial College London
Emanuel Gonçalves, INESC-ID & IST - Universidade de Lisboa
Emel Timucin, Acibadem University, Turkey
Emmanuel Bettler , University Claude Bernard Lyon 1
Emmanuel Margeat, CNRS, France
Erhard Hohenester, Imperial College London
Eric Alcaide, IDSIA
Eric Fischer, DFCI/HMS
Eric Lang, Cambridge
Eric Ma, Moderna
Erica Teixeira Prates, ORNL

Erich Bornberg-Bauer, IEB, University of Muenster
Erik Hartman, Lund University
Erik Lindahl, Stockholm University
Erkin Kurganov, Broad Institute
Esben Lorentzen, Aarhus University
Eugene Valkov, National Institutes of Health
Eunseok Choi, Daesang corporation
Evan J. Waldron, Columbia University
Evan Walter Clark Spotte-Smith, Carnegie Mellon University
Evgenii Osipov, KU Leuven
Fahreddin Palaz, MD, Department of Medicine, Massachusetts General Hospital, Harvard
Medical School, Boston, MA, USA
Fajie Yuan, Westlake University
Farid Hamidi, Tenaga Nasional Berhad
Federica De Leo, IFOM
Felipe Engelberger, University of Leipzig
Fernando Rodriguez-Pascual, CSIC, Spain
Fidan Sumbul, Self
Filipe R. N. C. Maia, Uppsala University
Fiona Brinkman, Simon Fraser University
Firas Khatib, UMass Dartmouth
Florent Boyer, Université de Nantes
Florent Delhommel, TUM
Florentine Rutaganira, Stanford University
Florian Hof, JGU
Florian Malard, INSERM
Florian Muller, Lindon Light Collective
Frank von Delft, University of Oxford
G. Marius Clore FRS, National Institutes of Health, Bethesda, Maryland, USA
Gabriel Ernesto Jara, Brazilian Center for Research in Energy and Materials
Gabriel Lander, Scripps Research
Gabriel Ortega Quintanilla, Gabriel Ortega-Quintanilla
Gabriel Rocklin, Northwestern University
Gabriel Torres , Universidad de los Andes
Ganesh Desai, Noetic
Gayatri Ramakrishnan, Radboud University Medical Center
Gehan Ranepura, CUNY Graduate Center
Gemechis Degaga, Industry
Geoff Winsor, Simon Fraser University
Geoffrey Hutchison, University of Pittsburgh
George Bouras, University of Adelaide
George Voren, Curie.Bio
Gerardo Tauriello, SIB Swiss Institute of Bioinformatics, Biozentrum, University of Basel
Gerardo Zavala, Gerardo Zavala, Harvard University

Gianluca Molla, University of Insubria
Gina El Nesr, Stanford University
Giorgos Kordopatis-Zilos, CTU in Prague
Giuseppe Albi, University of Pavia
Gjergji Kasneci, Technical University of Munich
Gonzalo Benegas, UC Berkeley
Gonzalo Parra, Barcelona Supercomputing Center
Gorka Navarrete , Universidad de La Laguna
Graeme Winter, Diamond Light Source, but endorsing as individual
Greg Tucker-Kellogg, National University of Singapore
Gregory Bedwell, DFCI/HMS
Grzegorz Warzecha, Greg from Genotic.com
GUANHUA CHEN, University of Wisconsin-Madison
Guilherme Menegon Arantes, University of Sao Paulo, Brazil
Guillaume Gaullier, Uppsala University
Guolin Ke, DP Technology
Gustavo Machado Alvares de Lima, Astex pharmaceuticals
Gyamfi Bright Okyere , Kwame Nkrumah University of Science and Technology
Hamed Kooshapur , Self
Hannah Wayment-Steele, Brandeis University
Hannes Stark, Massachusetts Institute of Technology
Hans Melo, Menten AI, Inc.
Hao Wu, Boston Children's Hospital, Harvard Medical School
Haotian Zhang, Columbia University
Harini Sudha, Forschungszentrum Juelich
Harry Powell, Imperial College London
Hassane S. Mchaourab, Vanderbilt University
Helder Veras Ribeiro Filho, Brazilian Center for Research in Energy and Materials
Helle D. Ulrich, IMB Mainz
Henry Lee, Cultivarium
Heta Gandhi, Nurix Therapeutics
Hilary Finucane, Broad Institute of MIT and Harvard
Hong Ha Vu, Johannes Gutenberg university mainz
Horst Lechner, Graz University of Technology
Hugo MacDermott-Opeskin, MSKCC
Huong Kratochvil, University of North Carolina at Chapel Hill
Ian A. Wilson, Scripps Research
Ian Nev, TCNJ
Ignacia Echeverria, UCSF
Ilyes Baali, Memorial Sloan Kettering Cancer Center
Ingemar André, Lund University
Issam Ben-Sahra, Northwestern University
Italo Cavini, University of Sao Paulo
Itamar Kass, Self

Iván Pulido-Sánchez, Memorial Sloan Kettering Cancer Center
Jaaziel do Vale, Portugal
Jacinto López-Sagaseta, Unit of Protein Crystallography and Structural Immunology, Navarrabiomed, 31008, Navarra, Spain.
Jacques Dainat, IRD
Jake Anderson, UC San Diego
Jake Smith, University of Oxford
Jakob Jung, Helmholtz HIRI, Wuerzburg, Germany
Jakob Noske, Universität Bayreuth
James Ashford, Oxford
James Baker, James Baker
James Daniel Moody, Brigham Young University
James Du, St Jude Children's Research Hospital
James Fairman, Genentech
James L Keck, University of Wisconsin, Madison
James Letts, UC Davis
James Lingford, Monash University
James Shorter, University of Pennsylvania
James Wells, UCSF
Jamie Lohoff, Forschungszentrum Juelich
Jan Felix, VIB-UGent Center for Inflammation Research
Jan Gebauer, University of Cologne
Jan Kosinski, EMBL Hamburg
Jan Padeken, Institute of Molecular Biology (Mainz, Germany)
Jane Richardson, Duke
Jared Bard, Texas A&M University
Jared Lewis, Indiana University, Bloomington
Jasmin Cara Aschenbrenner, Diamond Light Source
Jason Williams, Cold Spring Harbor Laboratory
Javier M. González , CONICET
Jean Fan, Johns Hopkins University
Jeet Patel , Developer
Jeffrey C. Hoch, UConn Health
Jeffrey J. Gray, Johns Hopkins University
Jeffrey Mindrebo, Scripps Research
Jeffrey R Wagner, Open Force Field
Jeliazko Jeliazkov, GSK
Jenny Huo, University of Chicago
Jenny Molloy, University of Cambridge
Jeremy Brun, Concerned Citizen
Jesper Dybkær Lauridsen, Technical University of Denmark
Jia Zheng Woo, Stanford University
Jiale Shi, MIT
Jiankun Lyu, The Rockefeller University

Jianshu Zhao, Georgia Institute of Technology
Jie Yang, Scripps Research
Jimmy Hayden-Linhares, Federal University of Amazonas
Jing Xie, MemVerge Inc.
Jinling Huang , Uppsala University
Jiri Damborsky, Masaryk University
JJ Phillips, Living Systems Institute, Exeter
Jo Lynne Rokita, CHOP
Joan Pous, IRB-Barcelona
Joana Paulino, University of Connecticut Health
Joana Pereira, University of Basel
João Victor da Silva Guerra, CNPEM
Joaquin Gomez Sanchez, ALBA Synchrotron
Jochem H. Smit, KU Leuven
Joel Ströbaek, Lund University
Joep Lurvink, Institute of Molecular Biology, Mainz
Johannes Walter, Harvard Medical School
John Cheney, OHSU - Knight Cancer Institute
John D Chodera, MSKCC
John Karanicolas, Fox Chase Cancer Center
John M McBride, Institute for Basic Science, South Korea
Jon Agirre, University of York
Jon Marles-Wright, Newcastle University
Jonas Teuwen, Netherlands Cancer Institute
Jonathan N. Besna, Université de Montréal
Jonathan Ostrem, UCSF
Jordan Berg, Self
Jordan Safer, Broad Institute of MIT and Harvard
Jordi Faraudo , ICMAB - CSIC
Jordi Juárez-Jiménez, Universitat de Barcelona
Jose A. Esteban, Centro de Biología Molecular Severo Ochoa
Josef P. Kynast, University of Bayreuth
Josep Manel Andrés Moscardó, EMBL
Joseph A. Russell, Integrated Health Surveillance & Diagnostics, MRIGlobal
Joseph Boktor, Caltech
Joseph H. Davis, MIT
Joseph Lyons, Aarhus University
Joseph S. Harrison, University of the Pacific
Joseph Steward, UC San Diego
Joshua Atkinson, Princeton University
Joshua P. Ramsay, Curtin University, Western Australia, Australia
Joshua Rollins, CUNY
Juan C. Caicedo, University of Wisconsin–Madison
Juan Manuel Orozco Rodriguez, SARomics Biostructures AB

Julia K. Varga, Hebrew University of Jerusalem
Julien Leuenberger, Institute of Physics, Ecole Polytechnique Fédérale de Lausanne
Julien Olivet, MSc, PhD, KU Leuven
Julien Richard Albert, CNRS
Jungsu Kim, Indiana University
Justin A. Lemkul, Virginia Tech
Juvenal Yosa, Simón Bolívar University
Jyler Menard, Concordia university
Kara Zielinski, Cornell University
Karl Gruber, University of Graz
Karl W Broman, University of Wisconsin-Madison
Karl-Peter Hopfner, Ludwig-Maximilians Universität Munich
Karsten Borgwardt, Max Planck Institute of Biochemistry
Kasper Krunderup Jakobsen , Technical University of Denmark
Kate Fieseler, University of Oxford
Katja Luck, Institute of Molecular Biology, Mainz, Germany
Kayla Sprenger, University of Colorado Boulder
Keaun Amani, Neurosnap Inc. (https://neurosnap.ai/)
Kelvin Lau, EPFL
Kenn Gerdes, Independent researcher, Copenhagen
Kenneth Huang, UCSF
Kevan M. Shokat, UCSF
Kevin Drew, University of Illinois at Chicago
Kevin Gardner, CUNY Advanced Science Research Center
Kevin Hu, Village Technologies
Kevin Jude, Stanford University
Kevin McAvoy, Weill Cornell Medicine
Kevin Smith, KTH
Kiarash Jamali, MRC Laboratory of Molecular Biology
Koen Beerens, Ghent University
Konstantin V. Korotkov, University of Kentucky
Konstantinos Kalogeropoulos , Technical University of Denmark
Kryštof Řehák, UCT Prague
Kyle Cranmer, Data Science Institute, Physics Department
Kyle D Bartek, Scientist II
Lance Stewart, Self
Lars Eicholt, University of Münster
Lars Juhl Jensen, University of Copenhagen
Lars Malmström, University of Zurich
Lauren Alexandrescu, Scripps Research
Lawrence Hunter, Ph.D, University of Chicago
Leandro Oliveira Bortot, CNPEM
Lee Cronin, University of Glasgow
Lei Stanley Qi, Stanford University

Lei Xie, City University of New York
Lex O'brien , Cosyne Tx
Lierin Lombardo, IFOM ETS - The AIRC Institute of Molecular Oncology
Lindsey R. F. Backman, Whitehead Institute
Lior Pachter, California Institute of Technology
Lior Zimmerman, Head of AI
Lipi Thukral, CSIR-Institute of Genomics and Integrative Biology
Lluís Revilla Sancho, Bioinformatician at IrsiCaixa
Logan Hallee, University of Delaware
Logan Hessefort, Arizona State University
Louis G. Smith, University of Pennsylvania
Luca Jovine, Karolinska Institutet
Lucas Farnung, Harvard Medical School
Lucas Jackson, Western Washington University
Luciana Renata de Oliveira, Universidade de São Paulo
Luck Haviland, University of Maine
Luis Mariano Polo , IHEM-CONICET
Luiz Felipe Vecchietti, IBS
Lukas Nabergall, University of Waterloo
Luke Lambourne, Dana-Farber Cancer Institute
M. J. Yantovski-Barth, Université de Montréal
Mads Gabrielsen, University of Glasgow
Madson Aragão, Federal University of Pernambuco
Magnus Petersen , FIAS, Goethe Universität Frankfurt
Maksim Zhdanov, UvA
Manfred Weiss, Helmholtz-Zentrum Berlin
Manuel Banzhaf, University of Newcastle
Marc Robinson-Rechavi, Department of ecology and evolution, University of Lausanne; and SIB
Swiss Institute of Bioinformatics
Marcelo Depólo Polêto, Virginia Tech
Marco Lironi, ASTRAMind
Marco Mangiagalli , University of Milano-Bicocca
Marco Nobile, Self
Marco Orlando, University of Milano-Bicocca
Marco Pleines, TU Dortmund University
Maria Jose Sanchez-Barena, Spanish National Research Council (CSIC)
Maria Nguyen, Stanford University
Marija Backovic, Institut Pasteur, Paris, France
Mariko Morimoto, Stanford University
Marin Moran, University of Liverpool
Mario Barbatti, Aix Marseille University
Marius Kausas, ViaNautis
Mark Craven, University of Wisconsin
Mark J. van Raaij, CNB-CSIC

Mark Olieman, Self
Marko Hyvonen, University of Cambridge
Markus Braun, Graz University of Technology
Markus Götz, Karlsruhe Institute of Technology
Markus J. Sommer, Johns Hopkins University
Mart Krupovic, Institut Pasteur
Marta Carroni, Stockholm University, SciLifeLab
Marta Chronowska, The University of Edinburgh
Martin Pacesa, EPFL
Martin Steinegger, Seoul National University
Mary-Ann, Diamond Light Source
Masahito Ohue, Tokyo Institute of Technology
Massimiliano Bonomi, CNRS - Institut Pasteur
Matheus Ferraz, NEC Bio Therapeutics GmbH
Mathieu E. Rebeaud, EPFL - LBS
Matthew Cummins, ETH Zürich
Matthew D. Disney, UF-Scripps
Matthew Holcomb, Scripps Research
Matthew Martinez, University of Pennsylvania
Matthew Snee, University of Manchester
Matthew W. Vaughn, PhD, Amazon Web Services
Matthias Peter, TRON Mainz
Matthieu Montes, CNAM, France
Mattia Salvadori, Università degli studi di Milano - Bicocca
Max Beining, Institute for Drug Discovery - University Leipzig
Max Overath, DTU
Max Winokan, Diamond Light Source
Merrick Pierson Smela, Harvard University
Merve Ayyildiz, Universität Bayreuth
Michael Backenköhler, Saarland University
Michael Baym, Harvard University
Michael Geeson, Sloan Kettering Institute
Michael K Gilson, University of California, San Diego
Michael Levitt, Stanford University School of Medicine
Michael M. Hoffman, University Health Network/University of Toronto
Michael MacCoss , University of Washington
Michael McLaughlin, Saint Joseph's University
Michael Sattler, Technical University of Munich & Helmholtz Munich
Michael Stam, University of Edinburgh
Michael Thompson, University of California, Merced
Michal Wieczorek, ETH Zurich
Michele Di Palma, University of Padova
Michelle Nemetchek, The University of Montana
Mick Watson, SRUC

Mickey Kosloff, University of Haifa
Miguel Correa Marrero, ETH Zurich; Swiss Institute of Bioinformatics
Miguel Garcia-Ortegon, University of Cambridge
Mihai L. Azoitei, Duke
Mihaly Badonyi, University of Edinburgh
Mike Henry, OMSF
Mikhail Shein, LMU Munich
Mikko Metsä-Ketelä, University of Turku
Miłosz Wieczór, IRB Barcelona
Minhuan Li, Harvard University
Miranda L Lynch, Hauptman-Woodward Medical Research Institute
Mohamed Marzouk Sobaih, Ain Shams University
Mohammad Imtiazur Rahman, Arizona State University
Mohammad mahmoudi gomari , Iran university of medical Sciences
MohammadSadeq Mottaqi, The City University of New York
Mohit Pandey, Fog Pharmaceuticals Inc.
Monika Oberer, University of Graz, Austria
Mostafa Zamanian, University of Wisconsin-Madison
Mrutyunjaya Panda, Foundation for Research and Technology Hellas
Muhammad Ismail , The British University in Egypt
Naail Kashif-Khan, University College London
Naga Sai Abhinay Devarinit, Open Source Community
Naoto Hori, University of Nottingham
Natalia Flechas , UPV
Natalie Tatum, Newcastle University
Nathaniel Paddock, Rutgers
Neelesh Soni, Department of Bioengineering and Therapeutic Sciences, University of California,
San Francisco, San Francisco, CA, USA
Nguyen Quan Khanh, Self
Nhat Truong Pham, Sungkyunkwan University
Niaj Mohammad Tanvir, Aarhus University
Niccolo Bruciaferri, Scripps Research
Nicholas Harmer, University of Exeter
Nicholas J. Dimonaco , McMaster University
Nicholas R. Rose, UCSC
Nicholas schurch, Biomathematics and Statistics Scotland
Nícia Rosário-Ferreira, University of Coimbra, Portugal
Nick Lynch, Curlew Research
Nico Arsenio Liman, Nanyang Technological University
Nicola Luigi Bragazzi, University of Parma
Nicolas Buitrago, Rice University
Nicolas Fourcaud-Trocmé, CNRS (France)
Nicolas Rougier, Inria
Niek van Hilten, UCSF

Niels Bøgholm, Aarhus University
Nihad Hassan, ML Engineer
Nikil Krishna , Student , SASTRA University
Nikolaos Rafailidis, University of Delaware, Gleghorn Lab
Noah Bradley , Biopharma
Noah Greenwald, Stanford University
Noah Herrington, Icahn School of Medicine at Mount Sinai
Noelia Ferruz, Institute of Molecular Biology of Barcelona
Nozomi Ando, Cornell
Núria Gironès , Universidad Autónoma de Madrid. Centro de Biología Molecular (CSIC-UAM)
Ofir Bibi , Lightricks
Olive Burata, UCSF
Olivier Gandrillon, CNRS
Ora Schueler-Furman, The Hebrew University of Jerusalem, Israel
Orion Archer Cohen, Lawrence Berkeley National Laboratory
Oscar de Felice, Head of Data Science, Whitelab Genomics
Owen Burns, University of Central Florida
Pablo Cárdenas R., MIT
Pablo Ricardo Arantes, University of California Riverside
Pan Li, Tsinghua University
Panagiotis L. Kastritis , University of Halle, Germany / National Hellenic Research Foundation,
Greece
Patrick Aloy, IRB Barcelona
Patrick Finneran, Menten AI
Patrick Hideki Fuzimoto Alvares, Patrick Hideki Fuzimoto
Patrick Hüther, Institute of Molecular Biology (IMB), Mainz, Germany
Patrick Loll, Drexel University College of Medicine
Patrick McDonald, Self
Patryk Kalinowski, The University of Chicago
Paul Ahlquist, University of Wisconsin - Madison and Morgridge Institute for Research
Paul Lourdu Xavier , Max Planck Institute/DESY
Paul P. Gardner, University of Otago
Pavan Kumar Behara, University of California, Irvine
Pedro B. P. S. Reis, Bayer AG
Pedro Figueiredo, Self
Pedro M. Matias, ITQB NOVA
Pedro Mendes, University of Connecticut School of Medicine
Peilin Yu, Brown University
Peilong Lu, Westlake University
Peter A. Szijj, Stanford University
Peter Brommer, University of Warwick
Peter Christoffer Holm, University of Copenhagen
Peter S. Kim, Stanford University
Peter Škrinjar, Biozentrum, University of Basel

Peter Zhang, State University of New York at Buffalo
Phil Wang, lucidrains
Philip A Romero, UW Madison
Philip Bradley, Fred Hutchinson Cancer Center
Philip E. Bourne, University of Virginia
Philipp Wild, Self
Phillip Ihmor, Self
Pierre Legrand, SOLEIL
Pierre Llompart, Academic
Pierre Marijon, LBM SeqOIA
Pierre Poulain, Université Paris Cité
Pilar Delgado, CBM (CSIC). Madrid
Piotr Wilk, Jagiellonian University, MCB
Polly Fordyce, Stanford University
Pradeep Hiriyur Nagaraj, MolVerse - Accelerating Molecular Discoveries
Pranav S. Bhamidipati, Caltech
Pranav Shah, University of Oxford
Prashant Saikia, ML Engineer
Pratyush Tiwary, University of Maryland
Puey Ounjai, Mahidol University
Qiyao Zhu, Flatiron Institute
Quentin Smith, MRC LMS
Rachael (Reiy) Mansbach, Concordia University
Rachelle Gaudet, Harvard University
Radoslaw Pluta, Institute for Research in Biomedicine, IRB Barcelona,
Rafael M. Counago , SGC-UNC
Ragothaman Yennamalli , SASTRA Deemed to be University
Rahul Ohlan, The Graduate Center, CUNY
RAHUL THAKUR, bioinformatician
Rajivgandhi sundaram , Johns Hopkins School of Medicine
Ramesh Jha, Los Alamos National Laboratory
Randy J. Read, University of Cambridge
Ranjani Ramasubramanian, University of Pennsylvania
Rasmus Jensen, EMBL, Heidelberg
Raswanth K Murugan, Xie Lab - Hunter CUNY & Weill Cornell
Ravi Kumar, Biotechnology Division, CSIR- Institute of Himalayan Bioresource Technology,
Palampur, Himachal Pradesh 176061
Rebekah L. Rogers, Associate Professor, and Lead for EVOLVE Research Group,
Bioinformatics and Genomics, UNC Charlotte
Regina Barzilay, Professor
Reid Alderson, Helmholtz Munich
Remo Rohs, University of Southern California
Reza Khayat, City College of New York
Riael Kratek, Self

Riccardo Pellarin , ENS of Lyon, CNRS
Richard Sherhod, Amphista Therapeutics Ltd.
Richard Shipman, Self
Rob Patro, Department of Computer Science, University of Maryland
Roberto Chica, University of Ottawa
Rohan Eapen, Independent researcher
Rohit Goswami, University of Iceland / Quansight Labs
Roman Jerala, Department of Synthetic Biology and Immunology, National Institute of
Chemistry, Ljubljana, Slovenia
Roman Kalkreuth, RWTH Aachen University
Roman Reggiardo, Stanford
Ron Hause, Shape Therapeutics
Roopesh Anand, Institute of Molecular Biology (IMB), Mainz
Roushan Nigam Shaw , Institute of chemical technology, Mumbai
Rubén Martínez Buey, Universidad de Salamanca
Rui Carvalho, Durham University
Ruth Nussinov, Cancer Innovation Laboratory, Frederick National Laboratory for Cancer
Research, NCI-Frederick
Ryan Abramowitz, UMass Chan Medical School
Ryan Forster, Albert Einstein College of Medicine
Ryan McHugh, University of Washington
S. Dolling , Self
Sabina Leanti La Rosa, Norwegian University of Life Sciences
Sam Horrell, Imperial College London
Sam Levine, PhD, Center for Neurotherapeutics, University of California, Irvine
Samee Ullah, National Center for Bioinformatics
Samiran Sen, Institut Pasteur
Samuel Blau, Lawrence Berkeley National Laboratory
Samuel tipps, University of Washington
Sandi Sufiandi, Cryo-EM based Research Development, National Research and Innovation
Agency (BRIN)
Sanket Walujkar, Harvard University
Santiago Castillo, Mayo Clinic
Santiago Lamas, Centro de Biología Molecular Severo Ochoa
Santiago Vargas, LBNL
Sarah Barelier, CNRS
Sarah EJ Bowman, HWI
Sarah Hymowitz, The Column Group
Sarah Shahmoradian, UTSW
Sarel Fleishman, Weizmann Institute of Science
Satyajit Chowdhury, Multi Omics Expert at PDx Research Labs
Savvas Savvides, Ghent University
Sean Hacking, UCSF
Sebastian Rowe, Harvard

Sébastien Fiorucci , Université Côte d'Azur
Seema Mattoo, Purdue University
Seiichi Hirano, Broad Institute
Selvakumar Edwardraja, University of Queensland
Sen Liu, Hubei University of Technology
Sergio Guadarrama-Ramos, CSUSM
Sergio Sanchez-Carrillo, Centro de Biología Molecular Severo Ochoa
Seth Derscha, University of Louisville
Seth P. Jones, University of Rochester Medical Center
Seth Woodbury, University of Washington Institute for Protein Design
Seychelle Vos, MIT
Shachar Sherman, Harvard University (SCRB)
Shankar Raj Devkota, Monash University
Sharon Li, University of Wisconsin - Madison
Shawn Costello, Stanford University
Shivananda Kandagalla , thinkMolecular technologies pvt ltd
Shozeb Haider, University College London
Shruthi Viswanath, National Center for Biological Sciences, TIFR, India
Shuo Zhang, Weill Cornell Medicine
Siavash Moghadami, PhD Student
Sibbe Bakker, Wageningen Bioinformatics
Siddharth Iyer, MIT
Silas Kieser, University of Geneva
Simon Dürr, EPFL
Simon John Clark, University of Tübingen
Simon Tournier, Univ. Paris Cité
Siyang Peng, Weill Cornell Medicine
Smita Mohanty, Oklahoma State University
Sonya M. Hanson, Flatiron Institute
Souradyuti Ghosh, Mahindra University
Spencer S. Ericksen, University of Wisconsin-Madison, UWCCC-DDC
srajan kapoor, SUNY - Buffalo
Srijit Seal, MIT
Staffan Holmqvist, University of Cambridge
Stan Z. Li, Westlake University
Stefan Frielingsdorf, Berlin Institute of Technology
Stefano Forli, Scripps Research
Steffen Winkler, UZH
stephane mouilleron, The Francis Crick Institute
Stephane Rety, CNRS
Steven L. Salzberg , Bloomberg Distinguished Professor of Biomedical Engineering, Computer Science, and Biostatistics, Johns Hopkins University
Steven Ness, University of Victoria
Stuart L. Schreiber, Arena BioWorks

Sukrit Singh, Memorial Sloan Kettering Cancer Center
Sumbul Haider, University of California, Irvine
Sun Hur, Harvard Medical Shool/HHMI
Suparno Nandi, Emory
Surabhi Rathore, UCSF
Suraj Gojanur, Suraj Gojanur
Surya Pratap Singh , Banasthali Vidyapith
Susan Egbert , Washington University at St Louis School of Medicine
Susanna Grigson, Flinders University
Sushmita Roy, Wisconsin Institute for Discovery and Biostatistics and Medical Informatics, University of Wisconsin-Madison
Suzanne Ackloo, SGC at University of Toronto
Swastik Phulera, Scripps Research
Takanori Nakane, Osaka University
Tamir Gonen, UCLA
Tanadet Pipatpolkai, Nanyang Technological University
Tanja Kortemme, UCSF
Tarun karthik kumar Mamidi, The university of Alabama at Birmingham
Tate Staples, Duke
Tatiana Aksinina, IMB
Tey Jia Rong, Institute of Systems Biology of National University of Malaysia
Thomas C Terwilliger, New Mexico Consortium
Thomas E. Ferrin, University of California, San Francisco
Thomas James McCorvie, Newcastle University
Tiago N Cordeiro, NOVA university
Tiew Yik Ting, INBIOSIS, The National University of Malaysia
Tim Russell , London School of Hygiene and Tropical Medicine
Timothy A. Whitehead, University of Colorado, Boulder
Timothy Gao, University of California, Berkeley
Timothy P. Jenkins , Department of Biotechnology and Biomedicine, DTU
Tina Lebar, Harvard Medical School, Dept of Genetics; Wyss Institute For Biologically Inspired Engineering
Tobias Madl , Medical University of Graz, Austria
Toby Beirne, Self
Tom Goddard, UC San Francisco
Tom Rapoport, Harvard Medical School and Howard Hughes Medical Institute investigator
Tomas Bruna, Joint Genome Institute, Lawrence Berkeley National Laboratory
Tomas Malinauskas, University of Oxford
Tsan Sam Xiao, Case Western Reserve University
Tsvetomir Bonev, none
Tunca Dogan, Hacettepe University
Umberto Lupo, EPFL
Unchun Yang, Chung-Ang University
Uroš Zavrtanik, University of Ljubljana

Utkarsh Narsaria , Texas A & M University
Varun Shivashankar, Fog Pharma
Vasilis J Promponas, University of Cyprus
Vidhi Pareek , Pennsylvania State University
Vikram Khipple Mulligan, Center for Computational Biology, Flatiron Institute
Viktor Danov, Self
Vincent Chaptal, CNRS
Vincent Zaballa, UCI
Vishvesh Karthik, Kyvor Genomics Inc
Vitaly Voloshin, Queen Mary University of London
Vladimir Yarov-Yarovoy, University of California, Davis
Wade Harper, Department of Cell Biology, Harvard Medical School
Wenhao Gao, RTH, University of Copenhagen
William cole, William Cole
William DeGrado, UCSF
William Rowley, University of Illinois, Chicago
William S. DeWitt, UC Berkeley
Willow Coyote-Maestas, University of California, San Francisco
Windsor Nguyen, Princeton University Department of Computer Science
Wouter Meuleman, Altius Institute for Biomedical Sciences
Xavier Robert, CNRS, France
Xi Chen, Tsinghua university
Xuhui Huang, University of Wisconsin-Madison
Yifan Cheng, UCSF
Ying Sun, University of Copenhagen
Ylva Ivarsson, Uppsala University
Yoan R. Monneau, St Jude children's research hospital
Yoel A. Klug, University of Oxford
Yogesh Kalakoti, Linköping University
Yogesh Taparia , Ben-Gurion University of The Negev, Israel
Yoshihisa Hirota, Shibaura Institute of Technology
Yuankang Zhao, Forschungszentrum Juelich
Yuchen Lou, Imperial College London
Yuichiro Takagi, IUSM
Yunhui Ge, Alkermes Inc
Yusuf Şeflekçi , Biruni University
YUZE SUN, National university of singapore
Zachary A Martinez, Caltech
Zeba Rizvi, Gabe Lander lab, Scripps Research
Zeynep H Gumus, Icahn School of Medicine at Mount Sinai
Zhangzhi Peng, Duke University
Zhongyue John Yang, Department of Chemistry and Data Science Institute, Vanderbilt University
Zibo Chen, Westlake University