

2023 Inductees

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Sept. 15, 1975

Primary Connections:

- North Carolina State University: Distinguished Professor of Food Science, 2018-present; Distinguished Scholar in Probiotics Research, 2016-18; Associate Professor of Food Science, 2013-18
- Danisco/DuPont Nutrition and Health (now part of International Flavors & Fragrances): R&D Director, Genomics, 2011-13; Group Manager, Genomics, 2007-11; Senior Scientist, Cultures Development, 2006-07; Scientist, Cultures Development, 2005-06

Education:

- Université Paris Descartes (now part of the University of Paris): B.S., Life Sciences, 1996
- Université de Technologie de Compiègne: M.S., Biological Engineering, 2000
- North Carolina State University: M.S., Food Science, 2000; Ph.D., Functional Genomics, 2004
- University of Wisconsin-Madison: MBA, 2011

Key Memberships/Awards:

- National Academy of Engineering: Member, 2019
- National Academy of Sciences: Member, 2018
- Gairdner Foundation: Canada Gairdner International Award, 2016
- Warren Alpert Foundation Prize, 2016

10 Things You Need to Know About

Rodolphe Barrangou

CRISPR-Enhanced Food Products

U.S. PATENT NOS. 9,951,342 & 9,879,269

1. Barrangou was born in 1975 in Paris, France.
2. He says that as a child, he was always curious about how the world works.
3. Barrangou co-founded companies such as CRISPR Biotechnologies, Ancilia Biosciences, TreeCo, Intellia Therapeutics and Locus Biosciences.
4. He is on the scientific advisory boards for Felix Biotechnology, Provaxus, Invaio Sciences and Inari Agriculture.
5. Barrangou is a member of the National Academy of Science (NAS) and received the NAS Prize in Food and Agriculture in 2018, and the NAS Award in Molecular Biology in 2017.
6. He is the editor-in-chief of The CRISPR Journal, and is on the editorial boards for Annual Reviews in Food Science and Technology, BioDesign Research, Genome Biology, and Applied and Environmental Microbiology.
7. Phi Tau Sigma, the Honor Society for Food Science, made Barrangou an Inductee in 2014.
8. He was on the board of directors and was board chair for Caribou Biosciences.
9. For the past two years, Barrangou has been on the National Academies Food Forum Board.
10. He has 24 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: April 17, 1970

Primary Connections:

- International Flavors & Fragrances: Senior Scientist and Technical Fellow, 2021-present
- Danisco/DuPont Nutrition and Health (now part of International Flavors & Fragrances): Senior Scientist and Technical Fellow, 2011-21; Senior Scientist, 2004-11

Education:

- Université Louis Pasteur (now part of the University of Strasbourg): M.S., Cellular and Molecular Biology, 1996; Ph.D., Cellular and Molecular Biology, 2000

Key Memberships/Awards:

- Bower Award and Prize for Achievement in Science, 2018
- Canada Gairdner International Award, 2016
- Warren Alpert Foundation Prize, 2016
- Massry Prize, 2015

10 Things You Need to Know About

Philippe Horvath

CRISPR-Enhanced Food Products

U.S. PATENT NOS. 9,951,342 & 9,879,269

1. Horvath was born in 1970 in Colmar, France.
2. His father was a tool maker for the Timken Co.
3. Horvath says he had an early interest in engaging in hands-on investigation to understand how things work: “I love to say that I grew up with a screwdriver in one hand and a hammer in the other one.”
4. When he was a teenager, he liked to tinker with motorcycles.
5. Horvath studied cellular and molecular biology, earning his master’s degree in 1996 and his doctorate in 2000 from the Université Louis Pasteur, which is now part of the University of Strasbourg.
6. In 2015, he received the Massry Prize.
7. Horvath was awarded the Franklin Institute Bower Award and Prize for Achievement in Science in 2018.
8. He says he is motivated by the idea of being able to help others.
9. Horvath currently lives in Châtellerault, France.
10. He has 19 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: April 30, 1962

Primary Connections:

- NASA Langley Research Center: Senior Materials Engineer, 1990-present

Education:

- Valparaiso University: B.S., Chemistry, 1985
- University of Akron: M.S. and Ph.D., Polymer Science, 1990

Key Memberships/Awards:

- NASA Inventors Hall of Fame, 2021
- Valparaiso University: Distinguished Alumni Award, 2017; Doctor of Science Honoris Causa, 2019
- Space Foundation's Space Technology Hall of Fame: Inductee, 2016
- NASA Langley Research Center: Lifetime Achievement Award, 2013
- Three R&D 100 Awards (R&D Magazine): 1995, 1996, 2000 (Editor's Choice)
- NASA Graduate Student Research Fellowship, 1987-90

10 Things You Need to Know About

Robert G. Bryant

LaRC-SI (Langley Research Center-Soluble Imide)

U.S. PATENT NOS. 5,639,850, 5,741,883 & 6,048,959

1. Bryant was born on April 30, 1962, in Chicago.
2. Growing up as a person of color, Bryant decided to "not let other people determine who and what I should be."
3. Bryant says he developed a love of reading from his mother, a reference librarian.
4. He has oculocutaneous albinism type 2, a genetic condition that causes him significant vision issues. Despite this condition he developed strong reading comprehension skills that gave him an advantage later when it came to reading technical papers and books.
5. Bryant says, "My advice to kids is to read. Read as much as you possibly can."
6. He achieved the rank of Eagle Scout in the Boy Scouts in 1974.
7. One of the companies that Bryant consulted with was Medtronic, which has licensed his NASA technology.
8. NASA has awarded over two dozen commercial licenses based on technologies Bryant and his NASA teams have developed throughout his tenure.
9. He has received many honors from NASA, including NASA's Invention of the Year, the NASA Exceptional Achievement Medal, and induction into the NASA Inventors Hall of Fame.
10. During his NASA tenure, Bryant has more than 30 U.S. patents and over a dozen foreign patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Dec. 11, 1968

Primary Connections:

- Max Planck Unit for the Science of Pathogens: Scientific and Managing Director, 2018-21
- Max Planck Institute for Infection Biology: Scientific Director, 2015-18
- Umeå University: Laboratory Head, Associate and Visiting Professor, 2009-17
- University of Vienna, Max Perutz Labs: Laboratory Head, Guest Assistant and Associate Professor, 2002-09

Education:

- The University Pierre and Marie Curie (now Sorbonne University): Bachelor's and Master's Degrees in Life Sciences, Biochemistry, Microbiology and Genetics, 1992; Ph.D., Microbiology, 1995

Key Memberships/Awards:

- Nobel Prize in Chemistry, 2020
- Wolf Prize Laureate in Medicine, 2020
- Harvey Prize, 2018
- Kavli Prize in Nanoscience, 2018

10 Things You Need to Know About

Emmanuelle Charpentier

CRISPR-Cas9 Gene Editing

U.S. PATENT NO. 10,266,850

1. Charpentier was born in 1968 in Juvisy-sur-Orge, France.
2. She says she was interested in sciences from a young age — interested not only in pure sciences and mathematics, but also in the human sciences such as psychology, sociology and philosophy.
3. In 2020, Charpentier and biochemist Jennifer Doudna were awarded the Nobel Prize in Chemistry.
4. She did postdoctoral research at the Pasteur Institute and the Rockefeller University.
5. Charpentier was a research associate at New York University's Langone Health, Skirball Institute of Biomolecular Medicine; St. Jude Children's Research Hospital; and NYU Medical Center.
6. She is the co-founder of CRISPR Therapeutics and ERS Genomics.
7. Charpentier also is on the scientific advisory boards of Horizon Discovery and CeMM.
8. She is a fellow of the American Association for Cancer Research Academy.
9. Among Charpentier's many honors are the Albany Medical Center Prize, Japan Prize in Life Science, Gairdner Foundation International Award, Tang Prize in Biopharmaceutical Science, Warren Alpert Foundation Prize, Massry Prize and Gabbay Award.
10. She has 50 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Feb. 19, 1964

Primary Connections:

- University of California, Berkeley: Li Ka Shing Chancellor's Chair in Biomedical and Health Sciences; Professor in the Departments of Chemistry, and of Molecular and Cell Biology; 2002-present
- Howard Hughes Medical Institute: Investigator, 1997-present
- Yale University: Professor, Molecular Biophysics and Biochemistry, 1994-2002

Education:

- Pomona College: B.A., Biochemistry, 1985
- Harvard Medical School: Ph.D., Biological Chemistry and Molecular Pharmacology, 1989

Key Memberships/Awards:

- Nobel Prize in Chemistry, 2020
- Wolf Prize Laureate in Medicine, 2020
- Harvey Prize, 2018
- Kavli Prize in Nanoscience, 2018

10 Things You Need to Know About

Jennifer Doudna

CRISPR-Cas9 Gene Editing

U.S. PATENT NO. 10,266,850

1. Doudna was born in Washington, D.C., and during her childhood, her family moved to Michigan and then to Hawaii.
2. She says that as a child, she loved the process of discovery and discovering things about the natural world.
3. In 2020, Doudna and microbiologist Emmanuelle Charpentier were awarded the Nobel Prize in Chemistry.
4. She did postdoctoral research at Harvard Medical School, Massachusetts General Hospital and the University of Colorado.
5. Doudna is the co-founder of Caribou Biosciences, Editas Medicine, Intellia Therapeutics, Mammoth Biosciences and Scribe Therapeutics.
6. She is on the scientific advisory boards of Algen Biotechnologies, eFFECTOR Therapeutics, Felix Biosciences, Inari Agriculture, Synthego, The Column Group and Vertex Pharmaceuticals.
7. Doudna is a board member for Johnson & Johnson and Tempus.
8. She is a fellow of the American Association for Cancer Research Academy, American Association for the Advancement of Science and the Packard Foundation.
9. Among Doudna's many honors are the National Academy of Sciences Award in Chemical Sciences, Albany Medical Center Prize, Dickson Prize in Science, Japan Prize in Life Science, Gairdner Foundation International Award, Tang Prize in Biopharmaceutical Science, Warren Alpert Foundation Prize, Massry Prize and Gabbay Award.
10. She has more than 100 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Jan. 2, 1938

Primary Connections:

- University of Michigan: Emerita Professor, Electrical Engineering and Computer Science, 1985-present
- DARPA: Assistant Director for Strategic Computing, 1983-85
- Massachusetts Institute of Technology: Visiting Associate Professor of Electrical Engineering and Computer Science, 1978-79
- Xerox PARC: Research Fellow and Manager, VLSI Systems Area, 1973-83
- Memorex Corp.: Senior Staff Engineer, 1969-73
- IBM Corp.: Research Staff Member, 1964-68

Education:

- Columbia University: B.S., Electrical Engineering, 1962; M.S., Electrical Engineering, 1963

Key Memberships/Awards:

- IBM Corp.: Lifetime Achievement Award, 2020
- American Association for the Advancement of Science: Fellow, 2016
- Computer History Museum: Fellow, 2014
- National Academy of Engineering: Member, 1989

10 Things You Need to Know About

Lynn Conway

Very Large-Scale Integration (VLSI)

U.S. PATENT NO. 5,046,022

1. Conway was born in 1938 in Mount Vernon, New York.
2. She says as a child, she spent a lot of her time in libraries: “I've been impacted in very deep ways by the stories of the adventures of people who've done cool things — adventures with technology, inventors, designers, discoverers.”
3. Conway is active in advocating for transgender rights and in seeking recognition for women’s technical achievements.
4. The National Organization of Gay and Lesbian Scientists and Technical Professionals named her its Engineer of the Year in 2005.
5. Conway has been awarded honorary doctorates from Trinity College, Illinois Institute of Technology, University of Victoria and the University of Michigan.
6. Electronic Design magazine named her to its Hall of Fame in 2002.
7. Conway is a fellow of IEEE, the American Association for the Advancement of Science and the Computer History Museum.
8. She has received the Franklin Institute’s John Price Wetherill Medal, the Achievement Award of the Society of Women Engineers, and the James Clerk Maxwell Medal of the IEEE and the Royal Society of Edinburgh.
9. Her book co-written with NIHF Inductee Carver Mead — “Introduction to VLSI Systems” — became the go-to textbook for chip designers.
10. Conway has five U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Nov. 9, 1959

Primary Connections:

- Human Engineering Research Laboratories (HERL), a collaboration between the U.S. Department of Veterans Affairs and the University of Pittsburgh: Founder, Director and CEO, 1994-present
- U.S. Department of Veterans Affairs: Senior Research Career Scientist and Research Center Director, 2000-present
- University of Pittsburgh School of Health and Rehabilitation Sciences: Assistant Vice Chancellor for Research for Health Sciences and STEM Collaboration, 2021-present; Distinguished Professor and FISA Foundation/Paralyzed Veterans of America Professor, 1994-present
- Civilian Aide to the Secretary of the U.S. Army, 2014-present
- California State University, Sacramento: Assistant and Associate Professor of Electrical and Biomedical Engineering, 1989-94
- Pacific Gas and Electric Co.: Instrumentation and Control Engineer, 1985-86

Education:

- California Polytechnic State University: B.S., Electrical Engineering, 1985; M.Eng., Electrical Engineering, 1986
- University of California, Santa Barbara: Ph.D., Electrical and Computer Engineering, 1989

Military Service:

- U.S. Army, 1976-82

10 Things You Need to Know About

Rory Cooper

Wheelchair Technology

U.S. PATENT NOS. 6,276,705 & 8,264,458

1. Cooper was born in 1959 in Los Angeles.
2. He says his experience as an Eagle Scout in the Boy Scouts helped him learn to problem solve, and his interest in tinkering was sparked by his family's automotive and repair shop.
3. In 1980, while he was serving with the U.S. Army in Germany, Cooper was hit by a vehicle while he rode his bicycle. He suffered a spinal cord injury and was paralyzed from the waist down.
4. When he became frustrated with his 80-pound wheelchair, he designed his own ultralight wheelchair in his family's shop.
5. In 1988, he won a Bronze Medal in the 4x400-meter relay at the Paralympic Games.
6. Cooper is a fellow of the National Academy of Inventors, IEEE, American Institute for Medical and Biological Engineering, Biomedical Engineering Society and American Association for the Advancement of Science, and an overseas fellow in the Royal Society of Medicine.
7. He was the recipient of the Honored Alumnus Award at his alma mater, California Polytechnic State University.
8. Among Cooper's many honors are the Samuel E. Heyman Service to America Medal, the U.S. Department of Defense Meritorious Civilian Service Medal and the U.S. Army's Distinguished Civilian Service Award.
9. He is a member of the board of directors of the Research Foundation of the Paralyzed Veterans of America, and a board member of Easterseals.
10. Cooper has more than 20 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Jan. 17, 1955

Primary Connections:

- University of Szeged (Hungary): Professor, 2022-present
- BioNTech AG: Senior Vice President, 2013-22
- RNARx: Co-founder and CEO, 2006-13
- University of Pennsylvania Perelman School of Medicine: Adjunct Associate Professor, 2009-present; Senior Research Investigator, 1995-2009; Research Assistant Professor, 1989-95

Education:

- University of Szeged: B.S., Biology, 1978; Ph.D., Biochemistry, 1982

Key Memberships/Awards:

- Breakthrough Prize: Breakthrough Prize in Life Sciences, 2022
- Japan Prize, Field of Materials and Production, 2022
- National Academy of Medicine: Member, 2022
- Albany Medical Center: Prize in Medicine and Biomedical Research, 2021
- Columbia University: Louisa Gross Horwitz Prize, 2021
- Lasker Foundation: Lasker-DeBakey Clinical Medical Research Award, 2021
- Vilcek Foundation: Vilcek Prize for Excellence, 2021

Things You Need to Know About

Katalin Karikó

Modified mRNA Technology Used in COVID-19 Vaccines

U.S. PATENT NO. 8,278,036

1. Karikó was born in Szolnok, Hungary.
2. She was a postdoctoral fellow at the Uniformed Services University of the Health Sciences, Temple University and the Hungarian Academy of Sciences.
3. Karikó immigrated with her husband and young daughter from Hungary to the United States in 1985.
4. She came to the University of Pennsylvania in 1989 and has served as a faculty member and researcher.
5. Karikó is a founding member of the planning committee for the International mRNA Health Conference, an annual event started in 2013.
6. In her native Hungary, she has been awarded an honorary doctorate from the University of Szeged, and the Széchenyi Prize.
7. Brandeis University awarded the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research to Karikó and Drew Weissman in 2020.
8. In 2021, she was recognized with the Wilhelm Exner Medal, awarded annually since 1921 to scientists and researchers who have had a direct impact on business and industry through their scientific achievements.
9. Karikó has 14 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Sept. 7, 1959

Primary Connections:

- University of Pennsylvania Perelman School of Medicine: Director of Vaccine Research and Professor of Medicine, 1997-present
- RNARx: Co-founder, 2006-13
- National Institute of Allergy and Infectious Diseases: Senior Staff Fellow, Laboratory of Immunoregulation, 1993-97
- National Institutes of Health: Fellow, Allergy and Immunology, 1990-93

Education:

- Brandeis University: B.A. and M.A., Biochemistry/ Enzymology, 1981
- Boston University: M.D. and Ph.D., Immunology/ Microbiology, 1987

Key Memberships/Awards:

- Breakthrough Prize: Breakthrough Prize in Life Sciences, 2022
- Japan Prize, Field of Materials and Production, 2022
- National Academy of Medicine: Member, 2022
- Albany Medical Center: Prize in Medicine and Biomedical Research, 2021
- Columbia University: Louisa Gross Horwitz Prize, 2021
- Lasker Foundation: Lasker-DeBakey Clinical Medical Research Award, 2021

10 Things You Need to Know About

Drew Weissman

Modified mRNA Technology Used in COVID-19 Vaccines

U.S. PATENT NO. 8,278,036

1. Weissman was born in Lexington, Massachusetts.
2. He was a fellow in allergy/immunology at the National Institutes of Health (NIH).
3. At the NIH, Weissman trained under National Institute of Allergy and Infectious Diseases Director Dr. Anthony Fauci.
4. With Chulalongkorn University in Thailand, Weissman's lab is developing a SARS-CoV-2 mRNA vaccine to help residents of Thailand and surrounding countries with limited financial resources access lifesaving vaccines.
5. Weissman is frequently featured on news programs, including CNN, ABC and BBC News, offering his expertise on infectious diseases and other public health issues.
6. He regularly trains both doctoral and undergraduate students in his lab, many of whom have gone on to hold prominent positions in academia, biotechnology and pharmaceutical companies.
7. Weissman serves on the scientific advisory boards of Arcturus Therapeutics, GreenLight Biosciences, RVAC Medicines and Uvax Bio.
8. Brandeis University awarded the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research to Weissman and Katalin Karikó in 2020.
9. Weissman is an elected member of the Association of American Physicians and the National Academy of Medicine.
10. He has 16 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Aug. 19, 1978

Primary Connections:

- Duolingo: CEO and co-founder, 2011-present
- Carnegie Mellon University: Associate Professor, 2011-12; Assistant Professor, 2006-11; Postdoctoral Fellow, 2005-06
- Google: Staff Research Scientist, 2009-11
- reCAPTCHA Inc.: Founder and CEO, 2008-09
- The ESP Game/Games With A Purpose: Creator

Education:

- Duke University: B.S., Mathematics, 2000
- Carnegie Mellon University: M.S., Computer Science, 2003; Ph.D., Computer Science, 2005

Key Memberships/Awards:

- Lemelson-MIT Prize, 2018
- MacArthur Fellowship, 2006

10 Things You Need to Know About

Luis von Ahn

reCAPTCHA

U.S. PATENT NO. 8,555,353

1. Luis von Ahn was born in 1978 in Guatemala City, Guatemala.
2. He is the son of two doctors, and he grew up exploring the candy factory owned by his mother's family. He says the hands-on experience of trying to understand how the factory's machinery worked fostered his curiosity.
3. Receiving a Commodore 64 personal computer at age 8 set him on his career path.
4. Speaking on the creation of the online language-learning platform Duolingo, he says he is very proud of the fact that 93% of users have not paid the company a cent to use the service.
5. He is the founder of the Luis von Ahn Foundation, which seeks to support local community leaders and nonprofit organizations working on improving the lives of individuals, especially women and girls, in Guatemala.
6. A recipient of the Packard Fellowship, MacArthur Fellowship, Sloan Fellowship and Microsoft Research Faculty Fellowship, von Ahn was named a Henry Crown Fellow in 2022.
7. In 2011 von Ahn was awarded the Grace Murray Hopper Award from the Association of Computer Machinery.
8. He lives in Pittsburgh, Pennsylvania.
9. Discussing what drives his work, von Ahn says: "Early on, what motivated me was surprising, non-obvious, clever ideas. These days, I'm a lot more motivated by large-scale impact. I think that is significantly more motivating."
10. He has 13 U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Sept. 28, 1934
Died: June 7, 2017

Primary Connections:

- University of Maryland School of Medicine: Professor of Pharmacology, 1979-2016; Professor Emeritus, 2016-17
- University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center: Researcher in the Hormone Responsive Cancers Program
- Worcester Foundation for Experimental Biology: Researcher, 1962-79

Education:

- University of Sheffield: B.S., Biochemistry, 1956; M.S., Biochemistry, 1959
- University of Manchester: Ph.D., Chemical Pathology, 1961

Key Memberships/Awards:

- American Association for Cancer Research (AACR) Academy: Fellow, 2013
- Pharmacia-American Society for Pharmacology and Experimental Therapeutics Award, 2012
- Jacob Heskel Gabbay Award in Biotechnology and Medicine, 2010
- Charles F. Kettering Prize from the General Motors Cancer Research Foundation, 2005

10 Things You Need to Know About

Angela Hartley Brodie

Aromatase Inhibitors

U.S. PATENT NO. 4,235,893

1. Brodie was born in 1934 in Oldham, Lancashire, England.
2. Aromatase inhibitors based on her discovery include anastrozole (Arimidex®), letrozole (Femara®) and exemestane (Aromasin®).
3. Brodie's father was an organic chemist who inspired her interest in science.
4. As a child, she attended a Quaker boarding school.
5. In 2006 Brodie was awarded the Dorothy P. Landon-AACR Prize for Translational Cancer Research Recipients.
6. She was an avid horse rider.
7. Brodie wrote more than 200 scientific papers.
8. She received the Susan G. Komen Brinker Award for Scientific Distinction in 2000.
9. Brodie had 13 U.S. patents.
10. She fought bias against women in the medical and research communities throughout her career.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Oct. 24, 1896
Died: Dec. 27, 1994

Primary Connections:

- United Beauty School Owners and Teachers Association: Founder
- Alpha Chi Pi Omega: Co-founder
- Mme. C. J. Walker Manufacturing Co.: National Supervisor and Vice President

Education:

- A.B. Moler Beauty and Culture School
- Mme. C. J. Walker Co. Schools of Beauty Culture
- Chicago Musical College
- Bethune-Cookman University: B.A., Psychology, 1973; Honorary Doctorate, 1961

Key Memberships/Awards:

- Patent Law Association of Chicago: Award for Pioneering Work, 1989
- Chicago State University: Lifetime Achievement Award, 1986
- National Council of Negro Women: Outstanding Achievement Award, 1972
- Bethune-Cookman College: Mary LcLeod Bethune Medallion, 1951

10 Things You Need to Know About

Marjorie Stewart Joyner

Permanent Wave Machine

U.S. PATENT NO. 1,693,515

1. Joyner was born in 1896 in Monterey, Virginia.
2. At the age of 20, she became the first Black student to graduate from the A.B. Moler Beauty and Culture School in Chicago in 1916.
3. She sought to participate in contests sponsored by white beauty organizations but was denied because of her race. This spurred her to start professional organizations for the Black beauty industry.
4. Joyner founded or co-founded the United Beauty School Owners and Teachers Association, Alpha Chi Pi Omega Sorority and Fraternity, and Natural Beauty Culturists' League.
5. In 1935, she was a founding member of the National Council of Negro Women.
6. In December 1937, Joyner sued the Burlington Rock Island Railroad after she was forced to ride in the baggage car next to a coffin with a body inside when she traveled for a speaking engagement. She was paid a settlement in 1938.
7. During World War II, she helped lead a center in Chicago that provided social events and supplies to Black soldiers.
8. Joyner was a trustee at her alma mater, Bethune-Cookman University. A dormitory there is named in her honor.
9. In 1987, the Smithsonian Institution featured her life in an exhibit on the Great Migration.
10. Joyner had two U.S. patents.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: April 8, 1922
Died: Oct. 28, 2020

Primary Connections:

- Doosan Bobcat North America (Melroe Manufacturing Co./Clark Equipment Co./Bobcat Co. now part of Doosan Group), 1958-83
- Keller Welding, 1953-58

Military Service:

- U.S. Navy, World War II

Key Memberships/Awards:

- Minnesota Inventors Hall of Fame: Inductee, 2004
- Association of Equipment Manufacturers: Inductee, 1999

10 Things You Need to Know About

Cyril Keller

Bobcat® Skid-Steer Loader

U.S. PATENT NO. 3,151,503

1. Cyril Keller was born in 1922 in Tintah, Minnesota.
2. He attended a country school near his home through eighth grade.
3. At age 20, Keller joined the U.S. Navy, where he served on a ship and on the island of Saipan during World War II.
4. He and his wife Myrtle raised eight children together.
5. Keller was an avid hunter and fisherman.
6. In Bobcat training centers where he worked, he was referred to by the nickname “Sarge.”
7. Keller was inducted into both the Minnesota Inventors Hall of Fame and the Association of Equipment Manufacturers Hall of Fame.
8. In 2004, the American Society of Agricultural and Biological Engineers named Keller’s skid-steer loader a Historic Landmark.
9. He had six U.S. patents.
10. Bobcat Company records that document the evolution of the Bobcat skid-steer loader were donated to the Smithsonian National Museum of American History in 2008.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: May 9, 1923
Died: July 11, 2010

Primary Connections:

- Loegering Manufacturing Co. (now part of ASV Inc.)
- Doosan Bobcat North America (Melroe Manufacturing Co./Clark Equipment Co./Bobcat Co. now part of Doosan Group), 1958-67
- Keller Welding: Founder

Military Service:

- U.S. Army, World War II

Key Memberships/Awards:

- Minnesota Inventors Hall of Fame: Inductee, 2004
- Association of Equipment Manufacturers: Inductee, 1999

10 Things You Need to Know About

Louis Keller

Bobcat® Skid-Steer Loader

U.S. PATENT NO. 3,151,503

1. Louis Keller was born in 1923 in Tenney, Minnesota.
2. He attended a country school near his home through eighth grade.
3. Keller joined the U.S. Army during World War II, where he served at the Army Air Corps base in Manila, Philippines. He received five decorations for his service.
4. At the time of his passing, he was the father of 10 children, a grandfather to 52 and a great-grandfather to 77.
5. Keller's hobbies included gardening, woodworking, fishing and hunting.
6. He was an active member of his church in Edgely, North Dakota.
7. Keller has been inducted into both the Minnesota Inventors Hall of Fame and the Association of Equipment Manufacturers Hall of Fame.
8. In 2004, the American Society of Agricultural and Biological Engineers named Keller's skid-steer loader a Historic Landmark.
9. He had six U.S. patents.
10. Keller also patented steel-over-the-tire tracks for wheeled vehicles that were manufactured and sold worldwide by Loegering Manufacturing.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: May 30, 1900
Died: March 4, 1989

Primary Connections:

- The Ohio State University: Adjunct Professor of Metallurgy, 1967-71
- Tennessee A&I State University (now Tennessee State University): Dean of the School of Engineering, 1957-59; Professor of Metallurgy, 1953-56
- Duriron Co. (now part of Flowserve Corp.), 1922-53

Education:

- Rensselaer Polytechnic Institute: B.S., Electrical Engineering, 1922

Key Memberships/Awards:

- Rensselaer Polytechnic Institute: Alumni Hall of Fame Inductee, 2020
- Dayton Urban League: Distinguished Community Service Award, 1983
- American Society of Metals, Dayton Chapter: Citation for Meritorious Contributions to the Science of Metals in the Field of Corrosion Resisting Alloys, 1953

10 Things You Need to Know About

James A. Parsons Jr.

Durimet 20 Stainless Steel Alloy

U.S. PATENT NO. 2,185,987

1. Parsons was born in 1900 in Dayton, Ohio.
2. He received an appointment to the U.S. Naval Academy, but turned it down because his father, his high school guidance counselor and Duriron founder Pierce Schenck, for whom Parsons' father worked, all feared for his safety at a time when there were no Black midshipmen.
3. When Parsons received the Harmon Foundation Award for his advances with rust-resistant/noncorrosive metals, his gold medal was presented by NIHF Inductee Orville Wright, and NIHF Inductee Charles Kettering gave the address for the event.
4. He was president of the National Technical Association from 1935-36.
5. Parsons received an honorary doctorate from Wilberforce University in 1941.
6. At Duriron, he was a supervisor for the production of metal alloys for use with smokeless powder and special materials for the Manhattan Project from 1941-45.
7. When Parsons retired from Duriron in 1953, the Dayton Daily News reported that Duriron was probably the only company of its kind with an all-Black laboratory staff (led by Parsons).
8. He was added to Dayton's Walk of Fame in 2007.
9. Parsons had eight U.S. patents.
10. Passionate about education, Parsons served from age 73 to 80 as an instructor at an occupational training center in Dayton.

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2023 NATIONAL INVENTORS HALL OF FAME INDUCTEE

Born: Feb. 1, 1952
Died: Aug. 24, 2016

Primary Connections:

- Alume Biosciences: Co-founder
- Senomyx: Co-founder
- University of California-San Diego: Professor of Pharmacology, Chemistry and Biochemistry, 1989-2016
- Howard Hughes Medical Institute: Investigator, 1989-2016
- University of Oregon: Institute of Neuroscience, 2015-16
- University of California, Berkeley: Assistant Professor of Physiology and Anatomy, 1982-89

Education:

- Harvard University: B.S., Chemistry and Physics, 1972
- University of Cambridge: Ph.D., Physiology, 1977; Research Fellow, 1977-81

Key Memberships/Awards:

- Nobel Prize in Chemistry, 2008
- American Association for Cancer Research Academy: Fellow, 2013
- Society of Molecular Imaging: Imaging Achievement Award, 2009
- Wolf Prize Laureate in Medicine, 2004

10 Things You Need to Know About

Roger Tsien

Green Fluorescent Protein (GFP) Variants

U.S. PATENT NO. 5,625,048

1. Tsien was born in 1952 in New York City.
2. In 2008, Tsien, Osamu Shimomura and Martin Chalfie shared the Nobel Prize in Chemistry.
3. The Nobel committee cited Tsien for extending “the color palette beyond green, allowing researchers to give various proteins and cells different colors. This enables scientists to follow several different biological processes at the same time.”
4. As a child, he was a Boy Scout.
5. In 1968, Tsien won the National First Prize in the Westinghouse Talent Search (now called the Regeneron Science Talent Search).
6. He was an elected member of the American Academy of Arts and Sciences, National Academy of Sciences and National Academy of Medicine.
7. In 2002, Tsien received the American Chemical Society Award for Creative Invention.
8. He had an intense interest in colors dating back to childhood, a foreshadowing of his later work.
9. Tsien has over 130 U.S. patents, which includes patents issued after his passing.
10. Clontech Laboratories (now owned by Takara Bio USA Inc.) was the first company to commercialize Tsien’s GFP variants.

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