

2022 YEAR IN REVIEW

Amgen R&D is innovating in the lab, in the clinic, in our interactions with regulators, and in our educational efforts with physicians and other stakeholders to progress our pipeline and get new medicines more quickly to patients who need them now.

WE ARE ADVANCING OUR CORE CAPABILITIES IN AI, DATA SCIENCE AND MULTISPECIFICS.



AI AND DATA SCIENCE

- Antibody discovery time **cut by 50%**
- Protein engineering success rates **doubled**
- Protein engineering and optimization timelines **reduced by more than 70%**

MULTISPECIFICS

- **AMG 133** is a multispecific antibody-peptide conjugate being investigated for the treatment of obesity
- **OLPASIRAN** is a lipoprotein(a)-lowering small interfering RNA multispecific being investigated for the treatment of atherosclerotic cardiovascular disease
- **Tarlatamab** is a half-life extended (HLE) bispecific T-cell engager (**BiTE®**) molecule being investigated for the treatment of small-cell lung cancer and neuroendocrine prostate cancer



Top: Amgen and Bay Area leaders attend ribbon-cutting for Amgen's cutting-edge facility in South San Francisco. **Below:** Ryan Potts, head of Amgen's Induced Proximity Platform, and Marissa Mock, head of Amgen's Generative Biology group.

WE ARE USING HUMAN AND REAL-WORLD DATA TO DECODE DISEASE, WHILE INNOVATING AND DIVERSIFYING CLINICAL TRIALS TO HELP MORE PATIENTS, FASTER.

NEW DATA RELEASED ON

- **BLINCYTO®**
- **AMG 133**
- **OLPASIRAN**
- **Repatha®**
- **LUMAKRAS®**

For more information, visit [Amgen.com](https://www.amgen.com).

HUMAN AND REAL-WORLD DATA

- **AMG 133** obesity investigational molecule was designed based on human **genetic data discoveries**
- **OLPASIRAN:** Lipoprotein(a)-lowering investigational drug Phase 3 enrollment used human clinical data to identify geographies with potential participants, **reducing patient screening by 50%**
- Real-world clinical data from **19 countries** used to project global incidence of hip fractures

MAJOR APPROVALS



approved in EU/Japan



approved in US



approved in EU/Japan

CLINICAL TRIAL INNOVATION AND DIVERSITY

- Machine learning model investment results in a prediction of clinical trial sites that enroll **2.4 times faster**
- RISE (Representation in Clinical Research) team launched patient engagement collaborations and implemented **diversity dashboards** to help diversify patient enrollment



Amgen is making strides in improving clinical trial diversity through its RISE (Representation in Clinical Research) team, which is working toward proportional representation for participants in clinical research.

WE COLLABORATE WITH AND ACQUIRE THE BEST AND BRIGHTEST TO ADVANCE OUR MISSION TO SERVE PATIENTS.

COLLABORATIONS



Generate: Biomedicines

ACQUISITION

Chemocentryx



Persevering in the face of challenges, VP of Global Development for Biosimilars, Janet Franklin, was named one of the 2022 Fiercest Women in Life Sciences.

OUR EFFORTS DO NOT GO UNNOTICED.

NEARLY 800 PEER-REVIEWED PUBLICATIONS IN JOURNALS, INCLUDING:

The New England Journal of Medicine | *The Lancet* | *Nature Medicine*

ACCOMPLISHMENTS

- **LUMAKRAS®** team receives Prix Galien for “Best Pharmaceutical Agent”
- Janet Franklin, VP of Global Development for Biosimilars, is named one of *Fierce Pharma’s* Fiercest Women in Life Sciences
- Ray Deshaies, Sr. VP of Global Research, is named one of *Fierce Pharma’s* Most Influential People in BioPharma
- Jane Parnes, Exec. Medical Director for Early Development, is named a Top 20 Woman Leading in Biopharma R&D by *Endpoints News*
- Ponda Motsepe-Ditshego, VP of Global Medical, is named one of the Most Influential Black Executives in Corporate America by *Savoy*
- *The Atlantic’s* Breakthroughs of the Year includes Amgen’s KRAS inhibitor, **LUMAKRAS®** and investigational weight-loss drug, **AMG 133**
- *Fast Company* names Amgen one of the 10 most innovative medicine and therapeutics companies of 2022 for its development of **LUMAKRAS®**



Amgen’s LUMAKRAS® team receives the 2022 Prix Galien “Best Pharmaceutical Agent” award for uncovering how to make the elusive KRAS mutation, one of the most commonly mutated proteins in cancer, druggable.

11 MILLION

OVER \$4 BILLION

INVESTED IN R&D IN 2022



PATIENTS REACHED GLOBALLY

~4,500
PEOPLE IN R&D

27
POSTDOCS IN R&D

7 GLOBAL R&D HUBS



50,000+

PATIENTS ENROLLED IN ALMOST 150 CLINICAL TRIALS GLOBALLY

4 NEW MOLECULES PROGRESS TO PHASE 1

400,000+



WHOLE GENOME SEQUENCES



NEARLY **6,500** CLINICAL TRIAL SITES

10,000+ CLINICAL TRIAL APPLICATION SUBMISSIONS

2.5 MILLION INDIVIDUALS' GENETIC/HEALTH DATA

CLOSE TO **800** PEER-REVIEWED PUBLICATIONS

200 PETABYTES OF DATA

WHAT DOES IT TAKE TO DO ALL THIS?

It takes a strong drive to discover, develop and deliver life-changing medicines to patients everywhere, because we believe that for every patient, there is a solution.



Above: David Reese, Exec. VP of R&D (left) looks on as Ray Deshaies, Sr. VP of Global Research, hugs Jae, a patient who credits his health to an oncology medicine Deshaies helped develop. Jae was part of Amgen's Mission Week, which brought together patients, their families and employees to celebrate, inspire, inform and provide a tangible example of Amgen's mission: To serve patients. **At right:** Patient, Jae (left), with Deshaies.