

Ohne Forschung, kein Fortschritt

GPMed – MedUni Wien – FOPI Veranstaltung

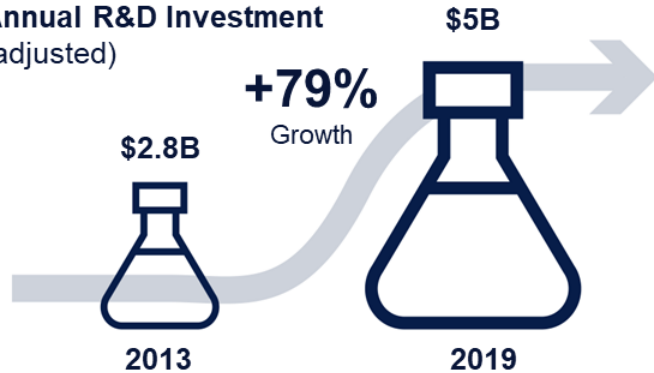
26. November 2020



abbvie

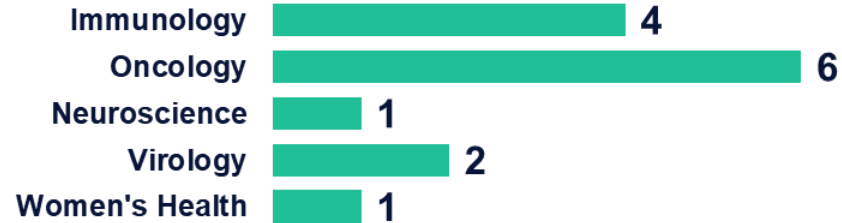
We have consistently increased R&D investments and productivity since inception

Annual R&D Investment
(adjusted)



14 Major Approvals Since 2013

Therapeutic Focus Areas



Revenue

\$9 billion in new products launched since inception*



*Data for FY2019

Designations Granted

Breakthrough Designation

14

Fast track

10

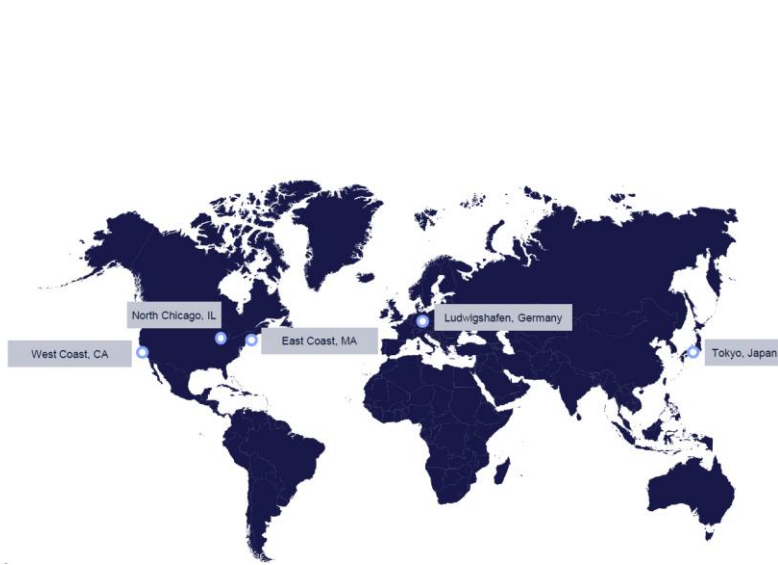
Accelerated Approval

4

Priority Review

19

Our R&D investment goes beyond our discovery locations and research hubs



The Development Design Center (DDC): Tailored expertise, predictive analytics and machine learning to deliver efficient trial decisions

Growing Pipeline

AbbVie's growing pipeline demands efficiency and innovation

Drive Consistency

The entire portfolio must have access to innovative tools and cross-therapeutic learning

Exceptional Tools

Big Data allows for predictive analytics and machine learning: the future of AbbVie's success



Using Machine Learning to accelerate clinical trials



Accelerating Study Enrollment by Better Site Selection

- We used more than 4 million data field from 10-15 sources to better predict highest performing sites
- These models outperform historic performance by 5-7 months



Predicting Study Participants who drop-out

- We analyzed more than 11,000 patients with millions of data to better understand factors associated with a dropping out of a study
- Solving industry wide problem of high drop out rates by using a risk score analysis



Finding Patients Pre-Diagnosis

- By analyzing millions of patient medical records, we can identify patterns of health care engagement that can predict a diagnosis
- The providers for these patients can then be alerted to the potential diagnosis, confirm the diagnosis clinically, and then recommend early interventions to prevent worsening of the disease or prescribe more effective treatments.



In silico Control arms

- We can predict placebo responses in our clinical trials by using machine learning to develop outcome algorithms
- These algorithms can be used to predict how our patients would have responded would they have not received our drugs

The DDC in action: Finding patients and designing ABBV-621 protocol

ABBV621_Gastro Ca

2,540 PATIENTS
May 22, 2018, 1:05 pm, Daniel Larsen, Live Network

32 HCOs

Count Patients

Network: Live Network: 45 of 45 HCOs online

Population: Any age / Any sex: 23,000,000 patients on network

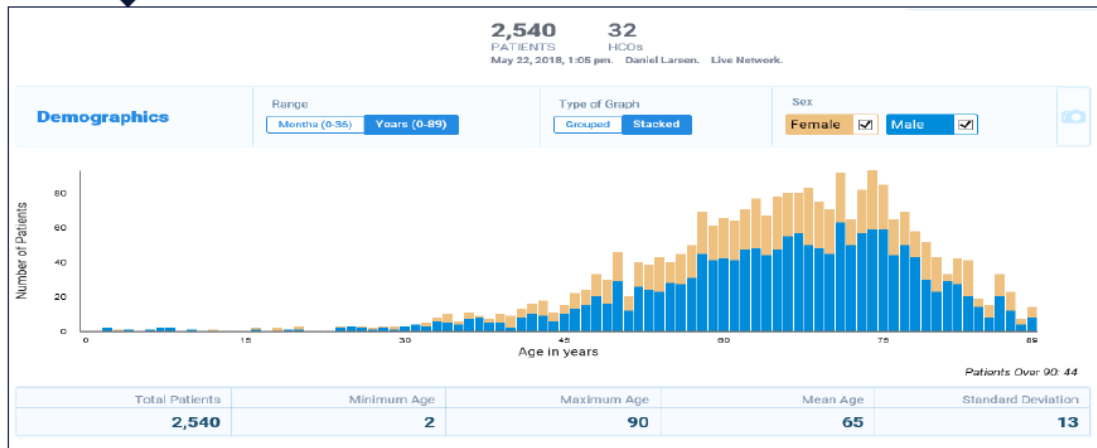
MUST Have: Search Term...

CANNOT Have: Search Term...

Search Term	Count
C16 Malignant neoplasm of stomach unspecified	48,250
100212 Chemotherapy, line 2	152,450
100213 Chemotherapy, line 3	56,310
100214 Chemotherapy, line 4	26,200
100215 Chemotherapy, line 5	13,860
1919503 Durvalumab	10
1875534 Avelumab	10
1792776 Atezolizumab	130
1592976 Nivolumab	4,540
1547545 Pembrolizumab	3,850

ABBV-621_NSCLC

Virginia Commonwealth University
University of Massachusetts Medical School
Erlangen University Hospital
University of Arizona
Weill Cornell Medicine
Washington University School of Medicine in St. Louis
USF Health
University of Kentucky Healthcare
University of Southern California (not including LAC+USC data)
University of Wisconsin - Madison



- The DDC worked with the study team for ABBV-621 (eftozanermin alfa or “Eftoza”) where time to proof of concept was critical
- Analytical insights from the DDC were utilized to accelerate the study design and find the patients

Typical clinical trial pain points

Contracting & Ethics

- Service fees & overhead costs
- IP
- Slow legal or EC review

Patient Recruitment

- Enthusiastic projections vs. Reality
- Patient awareness and engagement

Sites

- Lack of research experience and dedicated clinical trial resources

- Standardized templates with pre-agreed budget milestones
- Sufficiently staffed legal departments
- Centralized and online EC review

- Ability to leverage anonymized patient medical records
- Engage with patient advocacy groups

- Specialized centers of excellence with appropriate infrastructure
- Dedicated trial staff

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