

Paving the Way for our Future in Science-based Innovation

Capital Markets Day March 10-11, 2021

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Joining Bayer as the new Head of Pharma R&D

Results of Personal Due Dilligence for R&D

Areas of Strength

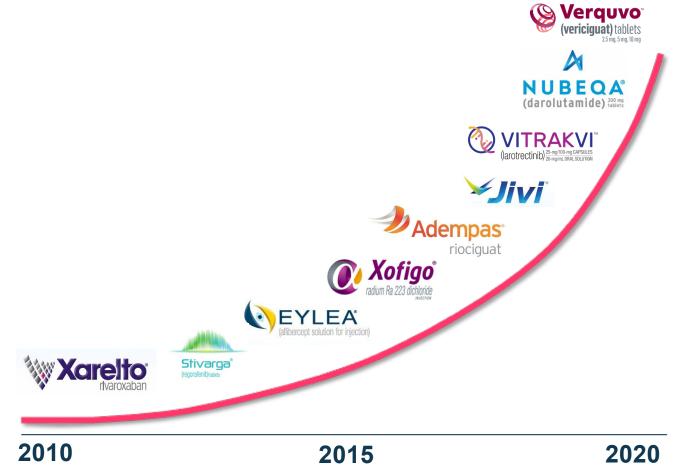
- Excellence in small molecule drug discovery
- Committed to areas of high unmet need
- Deep, science-based disease understanding
- Significant expansion into new science and modalities
- Bold investments to establish industry-leading cell- and gene-therapy platform

Areas to Strengthen

- Historical focus and dependence on small molecules
- Over reliance on internal R&D
- Scientific talent and team in certain areas



Strong Track Record of Pharma Innovation to Deliver Differentiated Drugs



Verquvo¹

First-in-class treatment for heart failure

Nubeqa²

AR antagonist with differentiated side-effect profile for the treatment of prostate cancer

Vitrakvi

NTRK gene fusion cancer treatment

Adempas

sGC modulator drug for pulmonary hypertension

Xofigo

Alpha-radiopharmaceutical as cancer treatment

Xarelto

Oral, direct factor Xa inhibitor for prevention and treatment of thrombotic disorders

¹ In collaboration with Merck & Co. Inc., Kenilworth, NJ, USA

² In collaboration with Orion Corporation



Maximizing Opportunities Created through Science to Deliver Solutions that Matter to Patients

Science-based, patient-centric and evidence-based

Deep understanding of disease biology and diverse range of modalities

Harnessing business opportunities



Addressing unmet medical need to the benefit of patients



We Focus on Diseases with High Unmet Need and apply a Broad Range of Modalities

Main Disease Areas

Cardiovascular Diseases

Oncology

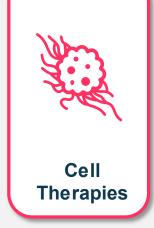
Endocrinology,
Metabolism &
Reproductive Health

Adjacencies: Ophthalmology, Rare Diseases















Main Modalities



Highlighting Late-/mid-stage Pipeline Opportunities and Scientifically Appealing Early R&D Assets

Late-/mid-stage Opportunities¹



Finerenone

- CKD in T2 Diabetes Patients
- Heart Failure



Factor XI(a) portfolio

Thrombo-embolic diseases



Elinzanetant (KaNDy NT-814)

Vasomotor symptoms during menopause



P2X3 Receptor Antagonist

Multi-indication opportunity

Scientifically Appealing Early Assets¹



Precision Molecular Oncology

- EGFRex20 inhibitor
- ATR inhibitor



Targeted Alpha Therapies

Thorium conjugates



CAR T-Cell Immuno-oncology

Collaboration with Atara Biotherapeutics



Gene Therapy

AskBio AAV gene augmentation platform



Cell Therapy

BlueRock iPSC technology platform

¹ selected examples



CKD in T2D Creates a High Disease Burden for Patients and Healthcare Systems, yet it is Critically Underdiagnosed

417 million people with T2D, expected to reach >600 million by 2045

>120M People with CKD in T2D* <50%

of patients with CKD in T2D are currently diagnosed

Cause of end-stage kidney disease (dialysis or transplant)

Risk of CV death for CKD in T2D patients vs. those with T2D alone

^{*} Calculated Number



Finerenone Targets a Key Driver of CKD Progression in Patients with Type 2 Diabetes

Drivers for CKD Progression



Treatment Approach¹

 Currently no treatment specifically addressing inflammation / fibrosis in CKD progression



- Glycaemic control
- Lipid management
- Diet



Blood pressure control

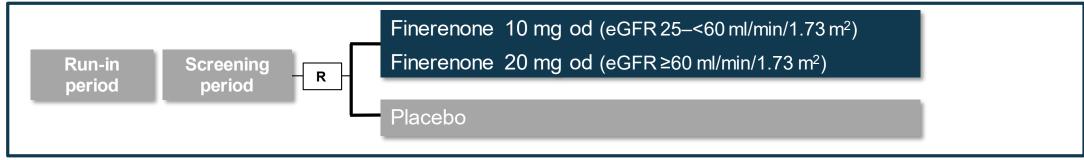
- Finerenone is targeting overactivation of the mineralocorticoid receptor, thus potentially reducing the number of inflammatory and fibrotic factors
- Two phase III trials in chronic kidney disease (CKD) in type 2 diabetes:
 - FIDELIO DKD: reported
 - FIGARO DKD: clinically completed
- Filed in key markets
- FDA priority review
- Potential first launch in H2 2021e

¹ Guideline recommendations for patients with diabetes to delay CKD, ESRD and/or CVD; examples only





FIDELIO and FIGARO are the Largest CKD Trial Program in Patients With T2D With More Than 13,000 Patients Enrolled





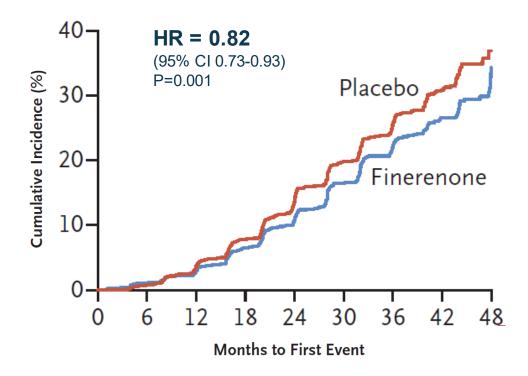
¹ Bakris GL, et al. AmJ Nephrol 2019; doi: 10.1159/000503713; ² Ruilope LM, et al. AmJ Nephrol 2019; doi: 10.1159/000503712



Finerenone Significantly Reduced Renal and Cardiovascular Outcomes in Patients with CKD and Type 2 Diabetes

FIDELIO Primary composite outcome

(Kidney failure, a sustained decrease of at least 40% in the eGFR from baseline, or death from renal causes)



Bakris et al, N Engl J Med 2020;383:2219-29.

Finerenone in FIDELIO-DKD

- Slowing the progression of CKD
 In patients with CKD and type 2 diabetes (FIDELIO trial)
- Delivering cardiovascular benefits
 Significant reduction in the composite of time to CV death or non-fatal CV events demonstrated in FIDELIO
- No interference with glycaemic control
- Non-steroidal and selective

 No detectable androgenic and progestogenic effects.

 Minimal impact on blood pressure
- Moderate effect on Potassium
 Infrequent study discontinuation due to hyperkalemia in patients who received finerenone in the FIDELIO trial



Expanding the Clinical Program for Finerenone into Heart Failure

FINEARTS-HF Phase III Trial in Patients with Heart Failure and LVEF ≥40%



- Primary endpoint
 Composite of CV deaths and total/recurrent
 heart failure events
- Estimated primary study completion March, 2024¹

- >50% of HF patients suffer from HF with LVEF ≥40%
- High unment medical need limited treatment options
- MR overactivation plays a significant role in certain types of heart failure
- Clinical evidence supports scientific rationale and informs design of FINEARTS-HF:
 - ARTS-HF phase II with Finerenone in HFrEF
 - TOPCAT subgroup analysis with Spironolactone in patients with LVEF >45%

¹ According to clinicaltrials.gov as of Feb 2021



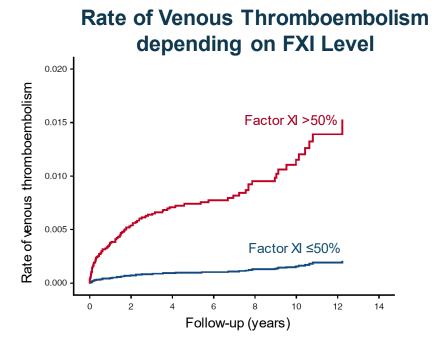
Significant Progress has been Achieved in Anti-coagulation Therapy but Medical Need Still Exists

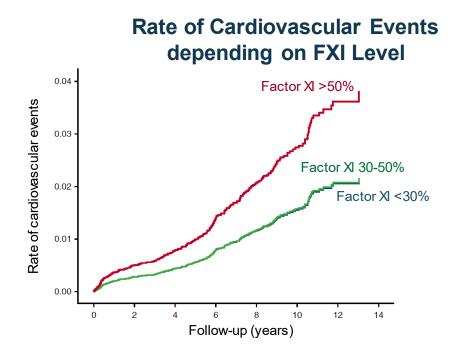


- Heparin and VKAs were the only anticoagulants available for most of the 20th century
- Guidelines now prefer New Oral Anticoagulants (NOACs) over VKAs for many indications
- NOACs are contraindicated in ESRD patients and in patients with mechanical heart valves
- Need remains for anticoagulants with a reduced bleeding risk especially in specific patient populations



Hereditary Factor XI Deficiency is Associated with Lower Risk for Cardiovascular and Venous Thromboembolic Events





- Subjects with hereditarily reduced levels of blood coagulation factor XI have a reduced risk of thrombotic disorders without suffering the risk of spontaneous bleeds
- Factor XI inhibition could achieve greater anti-coagulation without increased bleeding risk



Bayer Has a Broad and Diverse Factor XI(a) Portfolio

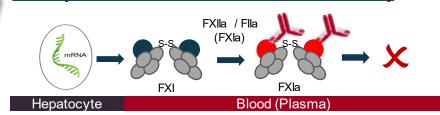
Asset Mode of Action Antisense technology prevents FXI expression FXI-Antisense¹ (IONIS-LICA) Hepatocyte Blood (Plasma)

Comprehensive Phase IIb Program

RE-THINC ESRD

Reduction of thrombotic events in endstage renal disease patients on hemodialysis

FXIa-Antibody (Osocimab)

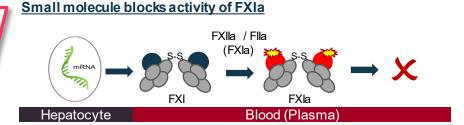


Antibody binds FXIa to block further interaction and activity

CONVERT ESRD

Prevention of thromboembolic events in ESRD patients on hemodialysis who are at risk for thromboembolic events

Oral FXIa Inhibitor



PACIFIC study program





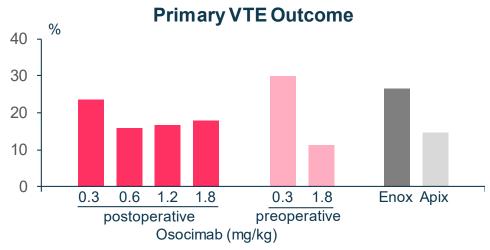


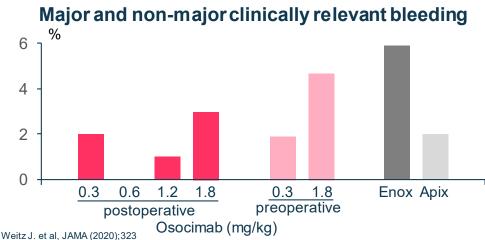
¹ Inlicensed from IONIS Pharmaceuticals



FOXTROT Phase II Data Confirm Proof of Concept for Osocimab

Factor XIa Inhibition by Osocimab Delivers Positive Clinical Results







- Single doses of osocimab vs. enoxaparin and apixaban for thromboprophylaxis in knee arthroplasty
- Postoperative osocimab at 0.6, 1.2 and 1.8 mg/kg was non-inferior to enoxaparin
- Preoperative osocimab at 1.8 mg/kg was superior to enoxaparin
- All major and non-major clinically relevant bleeding events were linked to surgical site
- No intracranial bleeding or bleeding into another critical site



High Unmet Medical Need for Non-hormonal Treatment of Vasomotor Symptoms in Menopausal Women

Typical Vasomotor Symptoms **During Menopause**



Sleep disturbance



Hot flashes



Night sweats

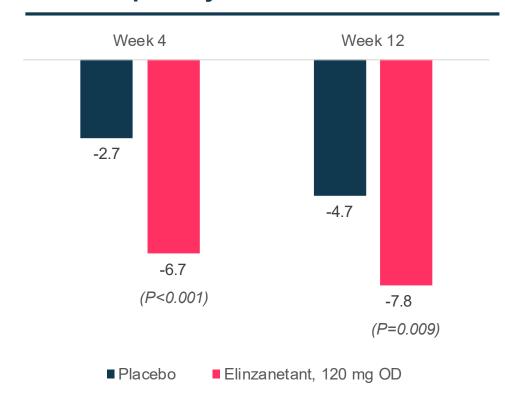
About 16m women in the U.S. and another 16m in Europe suffer from menopause symptoms

- Elinzanetant (KaNDy NT-814) is a first-in-class, nonhormonal, once-daily, oral neurokinin-1,3 receptor antagonist
- May reduce the hyperactivity of the KNDy neuronal network involved in thermoregulation
- Differentiated, double mode of action
- Phase III expected to start 2021
- Peak sales potential >€1bn



Elinzanetant Demonstrates Significant and Rapid Reduction in Vasomotor Symptoms in Menopausal Women

Reduction in moderate/severe VMS per day from baseline



- Phase IIb dose finding trial (SWITCH-1) including 199 women
- Primary endpoint results:
 - Rapid and highly significant reductions in the frequency of hot flashes
- Key secondary endpoint findings:
 - Significant improvements in quality of life, mood and reduction in sleep disturbance
- Well tolerated no serious AFs related to treatment
- Efficacy data compare well with those for hormonal replacement therapy

Simon et al., JESOCI, Vol 4, Abstract Suppl. 2020



Eliapixant, a P2X3 Receptor Antagonist with Multi-indication **Potential**

- P2X3 is an ATP-activated ion channel expressed mainly in the peripheral nervous system
- P2X3 is a major regulator of afferent nerve fiber signaling and a prominent mediator of pain
- Inhibition of P2X3 could be a new treatment option for patients affected by various conditions with nerve hypersensitivity and pain
- Eliapixant (BAY 1817080) is a potent, selective P2X3 receptor antagonist

Refractory or unexplained chronic cough



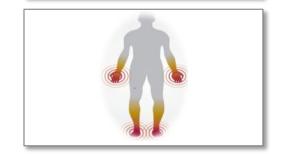
Endometriosis



Overactive bladder



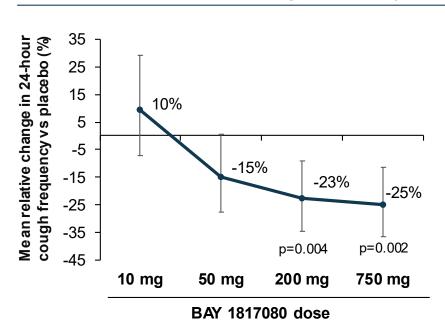
Neuropathic pain





Eliapixant Demonstrated Proof of Concept in Refractory and/or Unexplained Chronic Cough

Reduction in 24h cough frequency



Cumulative taste-related AEs

	BAY 1817080 dose			
РВО	10 mg	50 mg	200 mg	750 mg
3%	5%	10%	15%	21%

- 1-5% of the global population suffers from refractory and/or unexplained chronic cough (RUCC)
- Eliapixant demonstrated dose dependent reduction in cough frequency in phase II:
 - 24h cough frequency: -25% vs placebo (750 mg dose)
 - Awake cough frequency: -36% vs placebo (750 mg dose)
- Only low rates of mild-to-moderate taste-related Aes
- Phase IIb ongoing



Expanding the Clinical Program for Eliapixant

Overactive Bladder (OAB)

- Characterized by urinary urgency
- Impacts physical activity, social functioning, confidence, and emotional wellbeing
- Affecting about 12% of adults worldwide
- Limited treatment options
- Phase II

Endometriosis

- Characterized by the presence of endometrium-like cells growing outside of the uterine cavity
- Frequently leads to sub-/ infertility, cyclic and/or chronic pelvic pain, often with severe impact on all aspects of a woman's life
- Affecting about 10% of women at reproductive age
- No effective and safe long-term medications available
- Phase IIb

Neuropathic Pain

- Neuropathic pain is due to lesions of the central or peripheral nervous system
- Affecting about 7-10 percent of adults globally
- Persistent need for medications with better efficacy / safety especially in chronic conditions
- Phase II



R&D Focus Areas in Oncology



- Exploiting intracellular oncogenic dependencies with SMOLs & new modalities
- Established portfolio incl.
 Nubeqa¹, Vitrakvi, Stivarga



- Tumor targeting Th-227 conjugates unique to Bayer
- Xofigo as first approved targeted alpharadiopharmaceutical



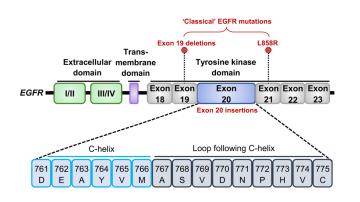
- Focused on select nextgeneration immunooncology targets
- Developing allogeneic CAR T-cell therapies

¹ In collaboration with Orion Corporation

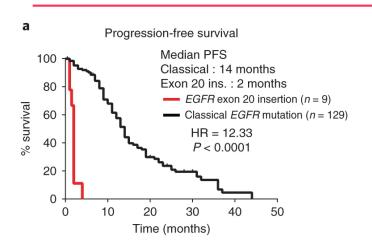


Addressing High Unmet Need of EGFRexon20 Cancer Patients With A Novel, Potent and Selective Small Molecule Kinase Inhibitor

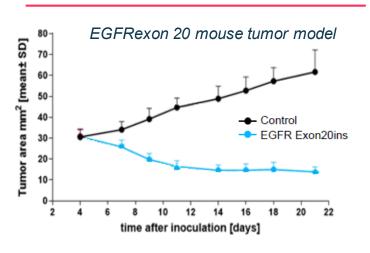
EGFR Exon20ins in NSCLC



High unmet medical need



Preclinical anti-tumor efficacy

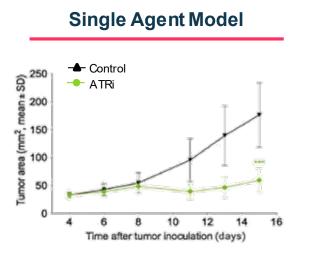


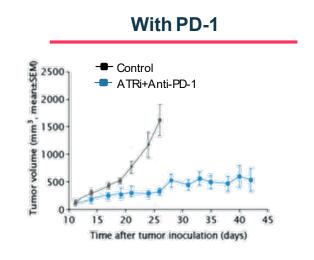
- EGFR clinical validated target; EGFR exon-20 insertion mutations occur in 1-2% of all lung adenocarcinomas
- Exon-20 insertion mutants confer resistance to all approved 1st, 2nd, and 3rd generation EGFR inhibitors (TKIs)
- Chemotherapy is currently the SoC with a mPFS of ~6 months
- Patients have a mPFS of 2 months with approved TKIs, thus representing a very high, unmet medical need
- Sparing EGFR wild-type required for activity and differentiation
- Phase I planned for 2H 2021

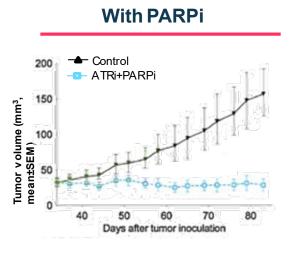
Robichaux et al., NatMed 2018



Bayer's ATR Inhibitor Demonstrates Preclinical Activity as a Single Agent and in Combination with PD-1 and PARPi







- Tumor cells not normal cells are often reliant on ATR to survive replication stress
- Genome wide studies highlight ATR-dependent synthetic lethal interactions
- Opportunity for molecularly defined patient enrichment
- Potential for combination therapies with targeted agents that block repair, DNA damaging agents, targeted agents that drive replication stress or combination with cancer immunotherapies for genetics defects in repair
- Phase I studies ongoing: monotherapy, in combination with pembrolizumab, in combination with niraparib

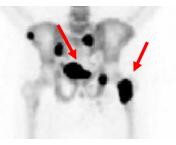


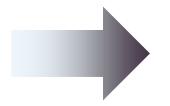
We are Pursuing Targeted Alpha Therapies with Potential Across Multiple Tumors

Xofigo vs. Antibody-Targeted Therapies

Prostate Cancer (bone)

Systemic treatment targeting cancer cells in the bone

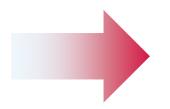




Launched: Xofigo (Ra-223)

Broader Tumor Types Systemic treatment to target sites of metastases wherever they exist



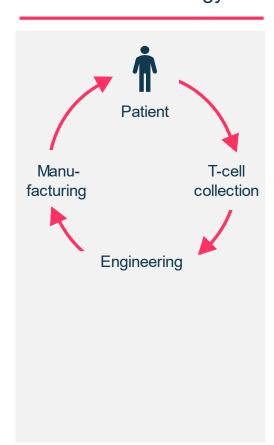


Pipeline: PSMA-TTC, HER2-TTC

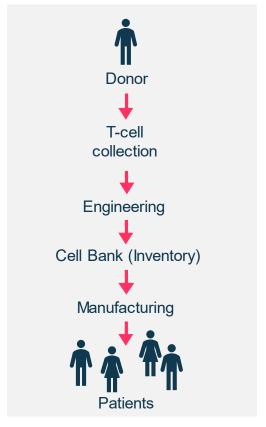


Pioneering Off the Shelf, Allogeneic T-Cell Immunotherapies with Atara Biotherapeutics

Autologous CAR-T technology



Allogeneic CAR-T technology



- Collaboration with Atara on next-generation, mesothelin-directed CAR T-cell therapies for the treatment of solid tumors
- Leveraging Atara's leading EBV T-cell technology platform and manufacturing capabilities
- Off-the-shelf approach based on third party healthy donors (allogeneic)
- Epstein-Barr-Virus (EBV) T-cells may have enhanced functional persistence in the patient and a lower likelihood for tissue rejection reaction
- Two assets in development
 - ATA3271 allogeneic T-cell immunotherapy in IND enabling studies
 - ATA2271 an autologous version in Phase I



Key Priorities for New R&D Leadership to Drive Transformation of our Innovation Model at Pharma





Paving the Way for our Future in Science-based Innovation

Capital Markets Day March 10-11, 2021

Christian Rommel
Head of R&D Pharmaceuticals





Appendix 1: R&D Pipeline Overview (as of Feb. 2020)

Phase I (26)

Selitrectinib (TRK Inhibitor, formerly LOXO-195)

Rogaratinib (pan-FGFR Inhibitor)

ATR Inhibitor

Copanlisib (PI3K Inhibitor)

Regorafenib (multi-Kinase Inhibitor)

Anetumab Ravtansine (Mesothelin-ADC)

Thorium (227Th) Anetumab Corixetan (Mesothelin-TTC)

PSMA-TTC (PSMA-Targeted Thorium Conjugate)

HER2-TTC (HER2-Targeted Thorium Conjugate)

Radium-223 Dichloride (combi Pembrolizumab)

Tinurilimab (CEACAM6 fb Antibody)

ILDR2 fb Antibody

AhR Inhibitor

ATA2271 (Mesothelin CAR-T Cell Therapie)

Congestive Heart Failure Gene Therapy

sGC Activator 2

Vasopressin V1a Receptor Antagonist

P2X4 Antagonist

BDKRB1 Receptor Antagonist

FVIII Gene Therapy

Pompe Disease Gene Therapy

Parkinson's Disease Gene Therapy

sGC Activator 3

PREP Inhibitor

IRAK4 Inhibitor 1

IRAK4 Inhibitor 2

Phase II (21)

Urothelial Cancer /// Rogaratinib (pan-FGFR Inhibitor)

Colorectal Cancer (mCRC) /// Regorafenib (combi Nivolumab)

Solid tumors (recurrent or metastatic) /// Regorafenib* (combi Nivolumab)

Hepatocellular Carcinoma (HCC) /// Regorafenib* (combi Pembrolizumab)

Thrombosis Prevention in ESRD /// FXI-LICA (Ligand Conjug. Antisense)

Thrombosis Prevention in ESRD /// Osocimab (anti-FXIa Antibody)

Stroke Prevention in Atrial Fibrillation /// FXIa Inhibitor

2º Stroke Prevention /// FXIa Inhibitor

Major Adverse Cardiac Events Prevention /// FXIa Inhibitor

Heart Failure /// Pecavaptan (Dual Vasopressin Receptor Antagonist)

Chronic Kidney Disease (CKD) /// Fulacimstat (Chymase Inhibitor)

Chronic Kidney Disease (CKD) /// Runcaciguat (sGC Activator)

Contraception /// Combi IUS: LNG (Progestin) + Indometh. (NSAID)

Vasomotor Symptoms // Elinzanetant (Neurokinin-1,3 Rec Antag.)

Endometriosis /// Eliapixant (P2X3 Antagonist)

Chronic Cough /// Eliapixant (P2X3 Antagonist)

Overactive Bladder /// Eliapixant (P2X3 Antagonist)

Neuropathic Pain /// Eliapixant (P2X3 Antagonist)

Acute Respiratory Distress Syndrome (ARDS) /// PEG-ADM Inhale

Obstructive Sleep Apnea /// TASK Channel Blocker

Magnetic Resonance Imaging /// High Relaxivity Contrast Agent (HRCA)

Phase III (8)

Prostate Cancer (mHSPC) /// Darolutamide (AR-Inhibitor)

Adjuvant Prostate Cancer /// Darolutamide

Non-Hodgkin Lymphoma /// Copanlisib (PI3K Inhibitor)

Glioblastoma /// Regorafenib (multi-Kinase Inhibitor)

Heart Failure (HFmr/pEF) /// Finerenone

Retinopathy of Prematurity /// Aflibercept (VEGF Inhibitor)

Diabetic Macular Edema (DME) /// Aflibercept High Dose

Age-related Macular Degeneration (AMD) /// Aflibercept High Dose

Selection of major Pharma development portfolio projects in clinical Phase I to III

Oncology











AAV

EGFR

ESRD

EGFRex20

Appendix 2: Abbreviations

Adeno-associated virus

ΑE FXI / FXIa Factor XI / Factor XIa Adverse event AR Androgen receptor HF Heart failure ATR Ataxia telangiectasia and Rad3-related protein **HFrEF** Heart failure with reduced ejection fraction Ataxia telangiectasia and Rad3-related protein inhibitor **ATRi** HER2 Human epidermal growth factor receptor 2 Adenosine triphosphate HR **ATP** Hazard Ratio billion IND Investigational New Drug bn CAR-T Chimeric antigen receptor modified T-cells **iPSC** Induced pluripotent stem cells CKD Chronic kidney disease kg Kilogram CV Cardiovascular LICA Ligand conjugated antisense CVD Cardiovascular disease LMWH Low molecular weight heparin LVEF DNA Deoxyribonucleic acid Left ventricular ejection fraction **EBV** Epstein-Barr-Virus Million m **eGFR** Estimated glomerular filtration rate Milligram mg

FXa

MI

MR

mPFS

Factor Xa

Myocardial infarction

Median progression free survival

Mineralocorticoid receptor

Epidermal growth factor receptor

End-stage renal disease

Epidermal growth factor receptor exon 20



Appendix 2: Abbreviations

NTRK Neurotrophic Tyrosine Kinase T2D Type 2 diabetes mellitus

NOAC New oral anticoagulant VKA Vitamin K antagonists

OAB Overactive bladder VMS Vasomotor symptoms

od Once daily VTE Venous thromboembolism

PARPi Poly (Adenosine diphosphate (ADP)-ribose) polymerase inhibitors

PD-1 Programmed cell death protein 1

PFS Progression free survival

PSMA Prostate-specific membrane antigen

Ra-223 Radium-223

R&D Research & Development

RNA Ribonucleic acid

RUCC Refractory and/or unexplained chronic cough

sGC Soluble guanylate cyclase

SMOL Small molecule

SoC Standard of care

TKI Tyrosin kinase inhibitor

TTC Targeted thorium conjugate