Welcome & Introductions
Ken Frazier, Chairman and Chief Executive Officer

Financial & Value Creation Overview
Rob Davis, Chief Financial Officer and Head of Global Services

Commercial Growth Drivers: KEYTRUDA & Beyond
Frank Clyburn, Chief Commercial Officer

Animal Health Innovation
Rick DeLuca, President, Merck Animal Health

Merck R&D Strategy Overview
Dr. Roger M. Perlmutter, President, Merck Research Laboratories

Pipeline Opportunities
Dr. Roy Baynes, Head of Clinical Development and Chief Medical Officer, and Mike Nally, Chief Marketing Officer

Future of Merck R&D: Panel Discussion
Merck Research Laboratories Leadership: Dr. Dean Li, Dr. Fiona Marshall and Dr. Daria Hazuda

Q&A / Closing Remarks
All

Lunch Break
All

Breakout Sessions
Pipeline Deep Dive

Next Generation Discovery

International Opportunity & China

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BROAD ONCOLOGY STRATEGY TO IMPROVE OUTCOMES FOR CANCER PATIENTS GLOBALLY

Broadly explore combinations to reach more patients

Lynparza® olaparib | LENVIMA® (lenvatinib) capsules 10 mg and 4 mg | Viralytics | Tilos Therapeutics | Peloton Therapeutics[1]

Advance pipeline and pursue strategic collaborations and acquisitions to expand portfolio

Identify patients most likely to benefit using biomarkers

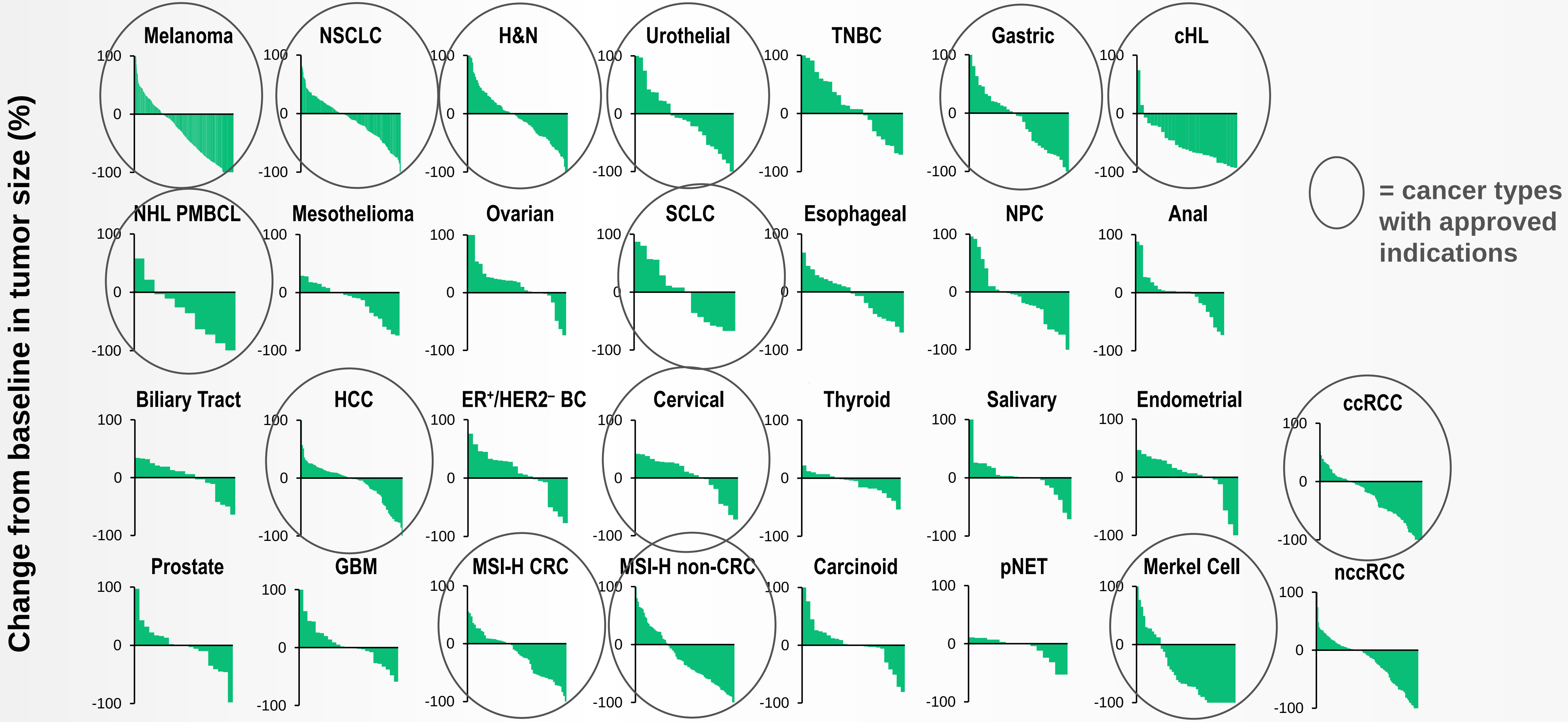
KEYTRUDA® (pembrolizumab) Injection 100 mg

Establish KEYTRUDA as foundational treatment across most tumor types and stages of disease

Dr. Roy Baynes

[1]Peloton acquisition expected to close in 3Q 2019

KEYTRUDA: BROAD ACTIVITY IN >25 CANCER TYPES



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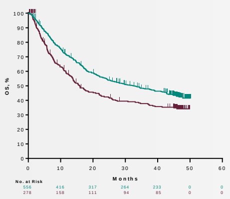
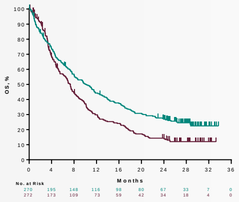
KEYTRUDA: REPEATED OVERALL SURVIVAL BENEFITS IN MONOTHERAPY AND IN COMBINATION

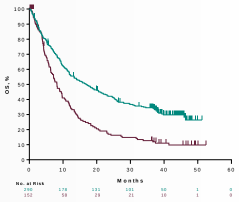
Ipi-Naive Melanoma, Any PD-L1
KEYNOTE-006
Pembro vs Ipi



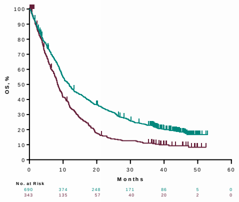
2L Bladder, Any PD-L1
KEYNOTE-045
Pembro vs Chemo



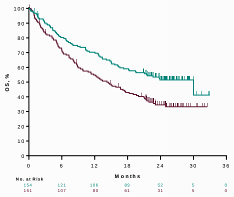
2L+ NSCLC, TPS ≥50%
KEYNOTE-010
Pembro vs Docetaxel



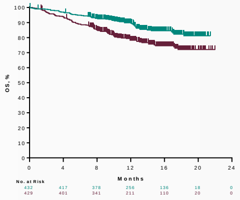
2L+ NSCLC, TPS ≥1%
KEYNOTE-010
Pembro vs Docetaxel



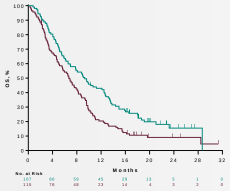
1L NSCLC, TPS ≥50%
KEYNOTE-024
Pembro vs Chemo



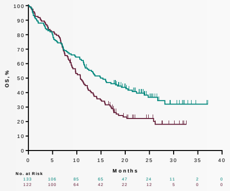
1L RCC, Any PD-L1
KEYNOTE-426
Pembro + Axitinib vs Sunitinib



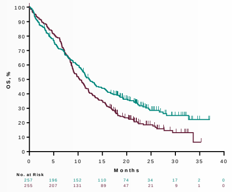
1L Esophageal, CPS ≥10
KEYNOTE-181
Pembro vs Chemo



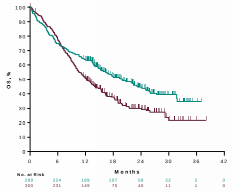
1L HNSCC, CPS ≥20
KEYNOTE-048
Pembro vs EXTREME



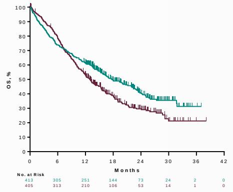
1L HNSCC, CPS ≥1
KEYNOTE-048
Pembro vs EXTREME



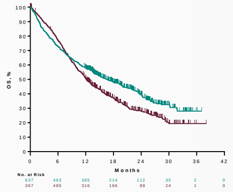
1L NSCLC, TPS ≥50%
KEYNOTE-042
Pembro vs Chemo



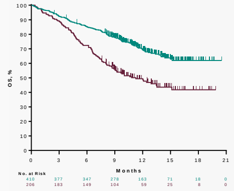
1L NSCLC, TPS ≥20%
KEYNOTE-042
Pembro vs Chemo



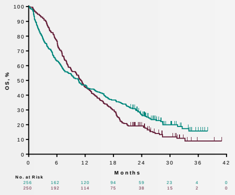
1L NSCLC, TPS ≥1%
KEYNOTE-042
Pembro vs Chemo



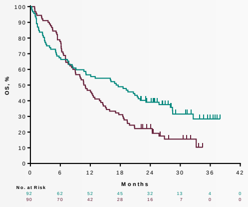
1L NSQ NSCLC, Any PD-L1
KEYNOTE-189
Pembro + Pem/Platinum vs Placebo + Pem/Platinum



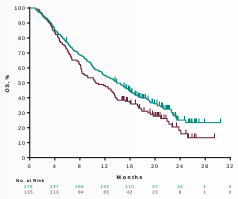
1L Gastric, CPS ≥1
KEYNOTE-062
Pembro vs Chemo



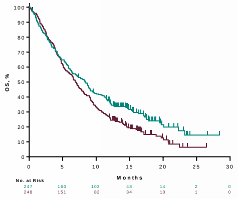
1L Gastric, CPS ≥10
KEYNOTE-062
Pembro vs Chemo



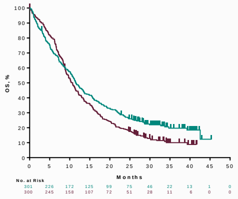
2L HCC, Any PD-L1
KEYNOTE-240
Pembro vs Placebo



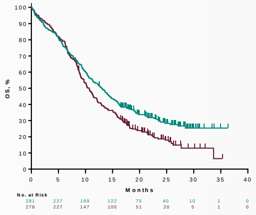
2L+ HNSCC, Any PD-L1
KEYNOTE-040
Pembro vs SOC



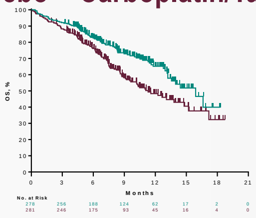
1L HNSCC, Any PD-L1
KEYNOTE-048
Pembro vs EXTREME



1L HNSCC, CPS ≥1
KEYNOTE-048
Pembro + Platinum vs EXTREME



1L SQ NSCLC, Any PD-L1
KEYNOTE-407
Pembro + Carboplatin/Taxane vs Placebo + Carboplatin/Taxane



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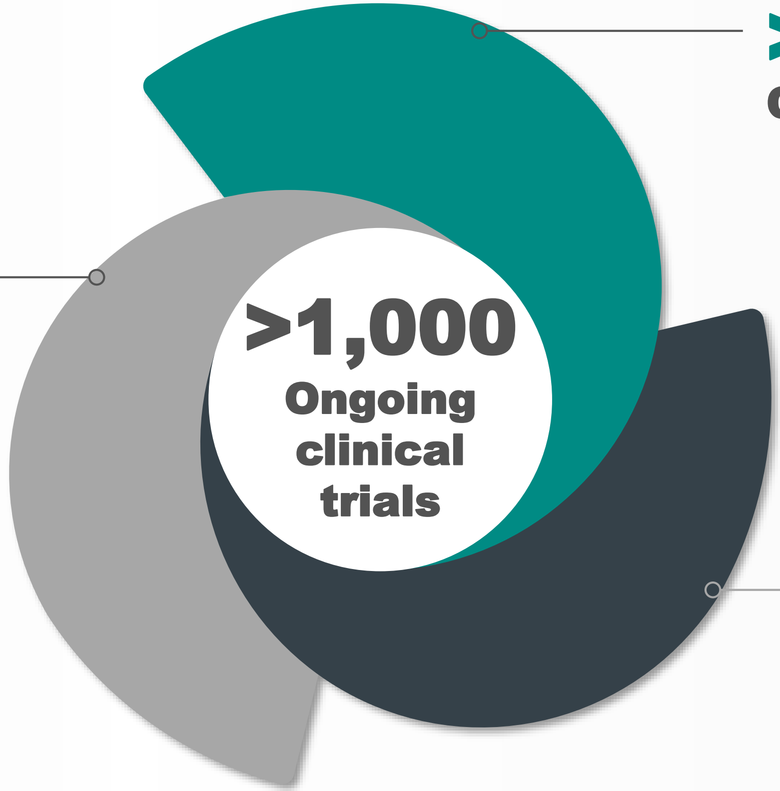
KEYTRUDA: STILL IN EARLY INNINGS OF DEVELOPMENT



>600
Combination trials

>100
Trials in adjuvant / neoadjuvant and earlier lines

>75
Registrational trials underway

Continuing to build a wall of data

Dr. Roy Baynes

KEYTRUDA: ROBUST I-O PROGRAM IN ADJUVANT / NEOADJUVANT AND EARLIER LINES OF THERAPY

2018
Adjuvant Melanoma (KN-054)
APPROVED

2019
TNBC Neoadjuvant / Adjuvant (KN-522)
cSCC Locally Advanced (KN-629)

2021
NSCLC Adjuvant (KN-091)
HNSCC Adjuvant / Neoadjuvant (KN-689)

2022
Adjuvant Melanoma (KN-716)
RCC Adjuvant (KN-564)
2L NMIBC (KN-057)
MIBC Locally Advanced (KN-676)

2023
Gastric & Esophageal Adjuvant / Neoadjuvant (KN-585)
HNSCC Locally Advanced (KN-412)

2024
NSCLC Neoadjuvant (KN-671)

2025
Adjuvant / Neoadjuvant MIBC (KN-866)
Adjuvant / Neoadjuvant MIBC (KN-905)
HCC Adjuvant (KN-937)
NSCLC Stage I/IIa (KN-867)

2026+
TNBC Adjuvant (KN-242)
cSCC Locally Advanced (KN-630)
ER+ / HER2- Breast Cancer Adjuvant / Neoadjuvant (KN-756)

Many registrational trials with readouts over the coming years

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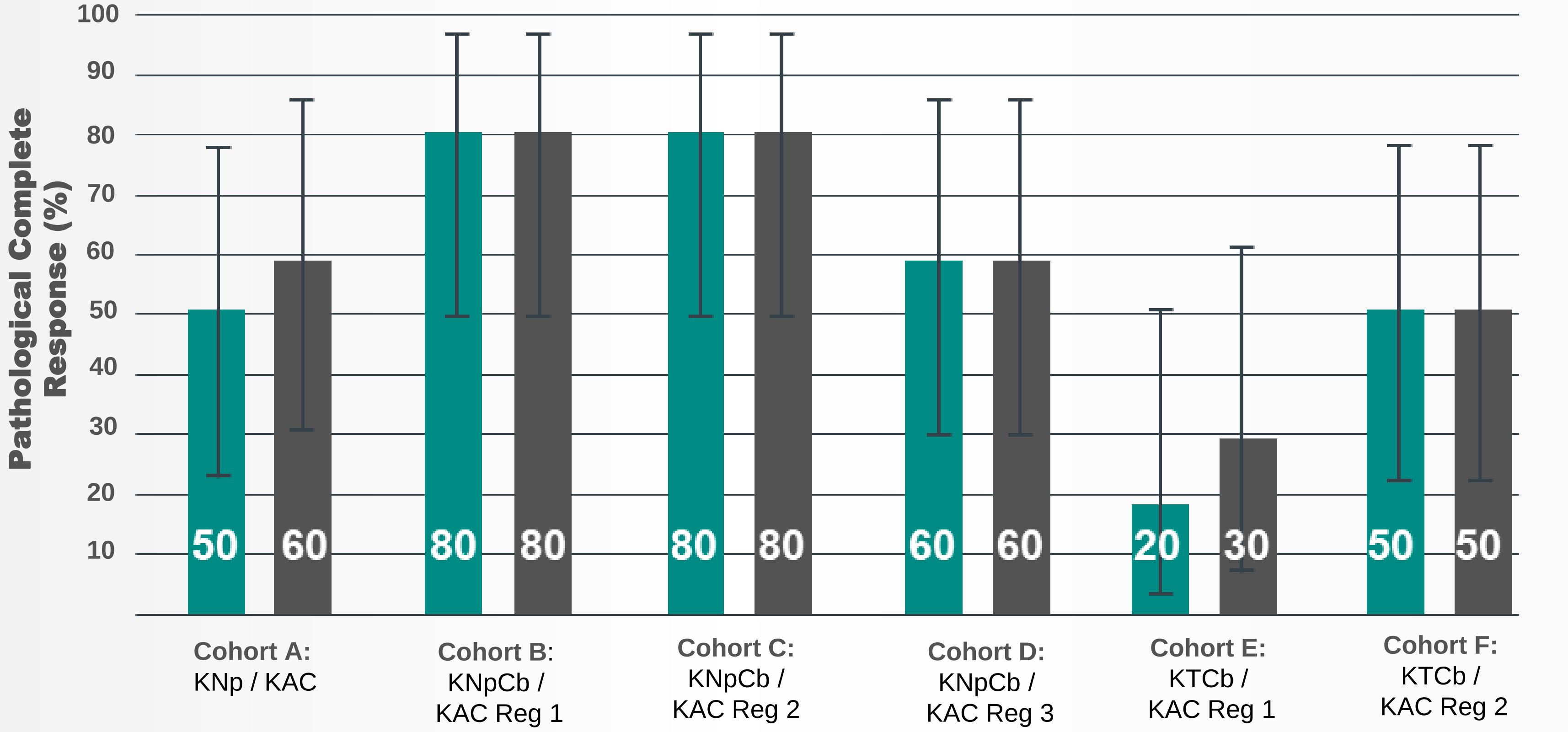
KEYTRUDA: EARLY EVIDENCE IN BREAST CANCER; 10 ONGOING TRIALS



N = 60

K = KEYTRUDA
Np = Nab-pac
A = doxorubicin
C = cyclophosphamide
Cb = carboplatin
T = paclitaxel

Encouraging results from KEYNOTE-173 show promise in adjuvant / neoadjuvant settings

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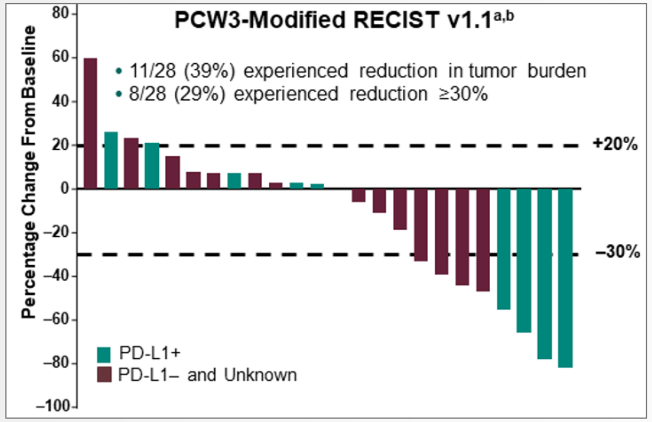
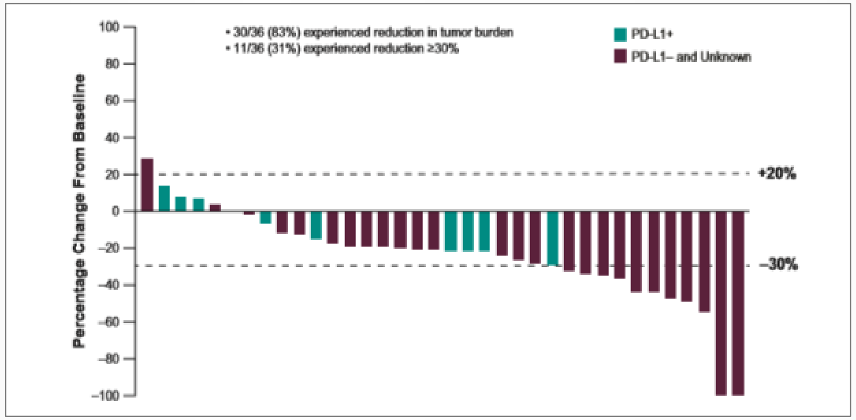
KEYTRUDA: EARLY STAGE PROSTATE CANCER DATA INFORM PHASE 3 DEVELOPMENT PROGRAM

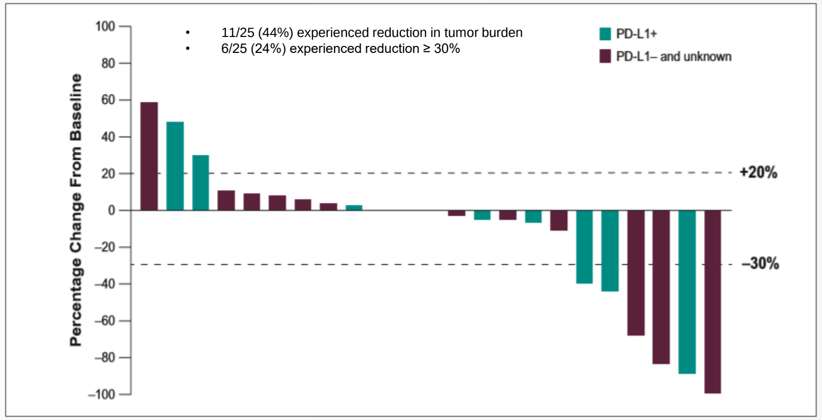
KEYNOTE-365 Cohort A
KEYTRUDA+Lynparza



KEYNOTE-365 Cohort B
KEYTRUDA+Docetaxel



KEYNOTE-365 Cohort C
KEYTRUDA+Enzalutamide



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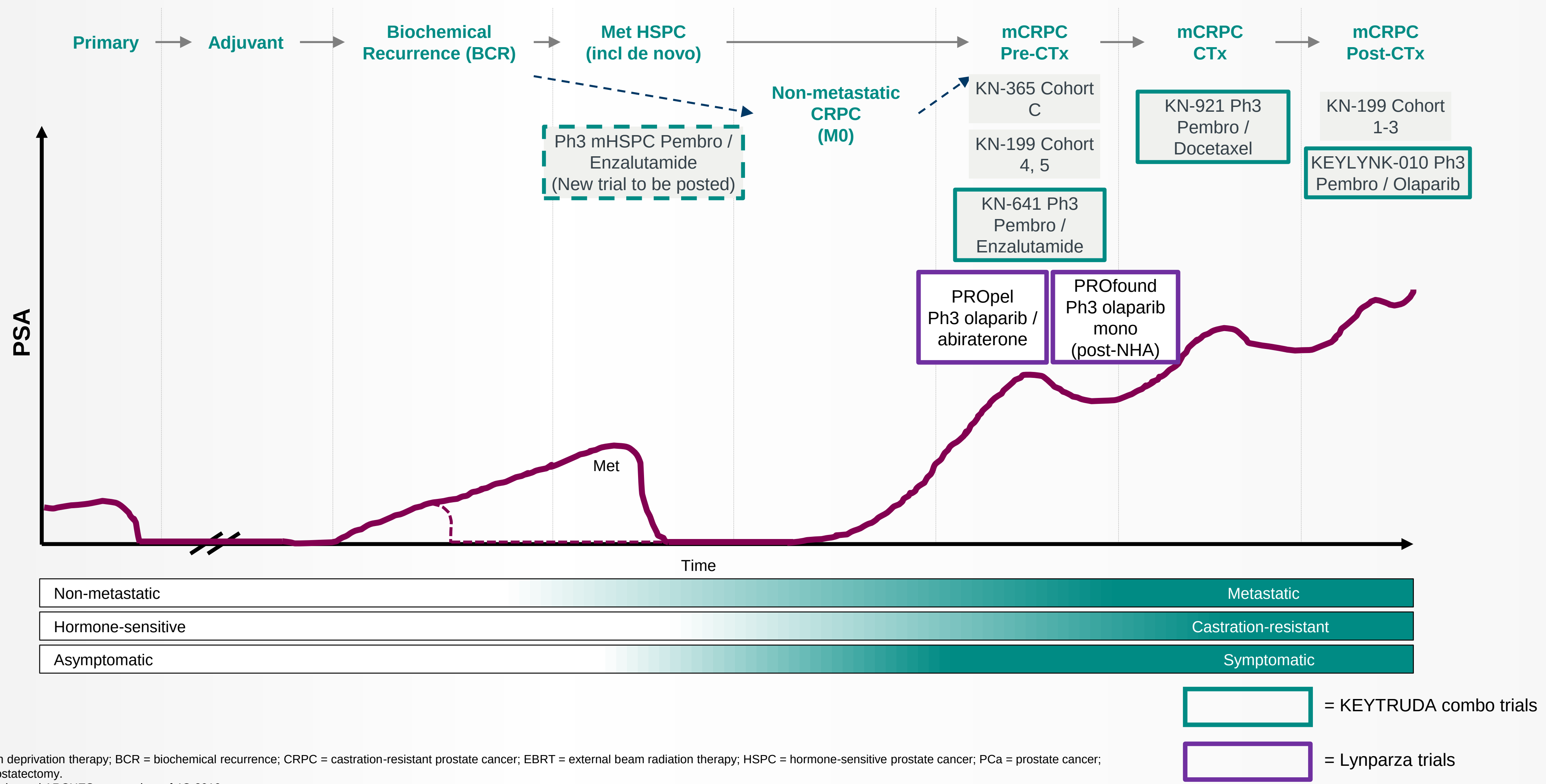
BROADEST PROSTATE CANCER PROGRAM WITH MULTIPLE PH 3 TRIALS ADDRESSING 40% OF PATIENTS



ADT = androgen deprivation therapy; BCR = biochemical recurrence; CRPC = castration-resistant prostate cancer; EBRT = external beam radiation therapy; HSPC = hormone-sensitive prostate cancer; PCa = prostate cancer; RP = radical prostatectomy.

*CI indicates estimated ARCHES approval as of 4Q 2019

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LYNPARZA: SHOWING EFFICACY BEYOND WOMEN'S CANCERS

Ovarian cancer

- 1L, non*BRCA*, KEYTRUDA combo (KEYLYNK-001)
- 1L Maintenance *BRCA*+ (SOLO-1) - Approved
- 1L Maintenance, All Comers Combo + Bev (PAOLA-1)
- PSR, All Comers Combo + Cediranib (GY004)
- PRR, All Comers Combo + Cediranib (GY005)
- 2L+ PSR (SOLO2/Study19) - Approved
- 3L+ PSR, g*BRCA* Treatment (SOLO3)

Breast cancer

- mBC, g*BRCA* (OlympiAD) - Approved
- HER2- Adjuvant, g*BRCA*m (OlympiA)

Pancreatic cancer

- 1L Maintenance g*BRCA* (POLO)

Efficacy

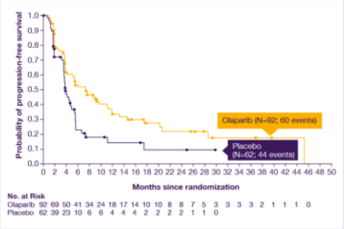
Median PFS for patients treated with olaparib nearly doubled (7.4 months) compared to patients treated with placebo (3.8 months)

47%* reduction in risk of disease progression or death, compared to placebo

*HR 0.53 [95% CI 0.35-0.82], p=0.0038

33.7% of patients receiving olaparib remained progression-free after one year

68% data maturity



Prostate cancer

- mCRPC, All Comers (KEYLYNK-010)
- mCRPC, HRRm (PROfound)
- mCRPC, All Comers Combo + Abiraterone (PROpel)

Lung cancer

- 1L NSQ NSCLC (KEYLYNK-006)
- 1L SQ NSCLC (KEYLYNK-008)

Tumor agnostic

- HRRm Basket (LYNK-002)

Demonstrating potential in prostate cancer, pancreatic cancer and more

Collaboration with AstraZeneca
PRR: Platinum Relapsed Recurrent; PSR: Platinum Sensitive Recurrent

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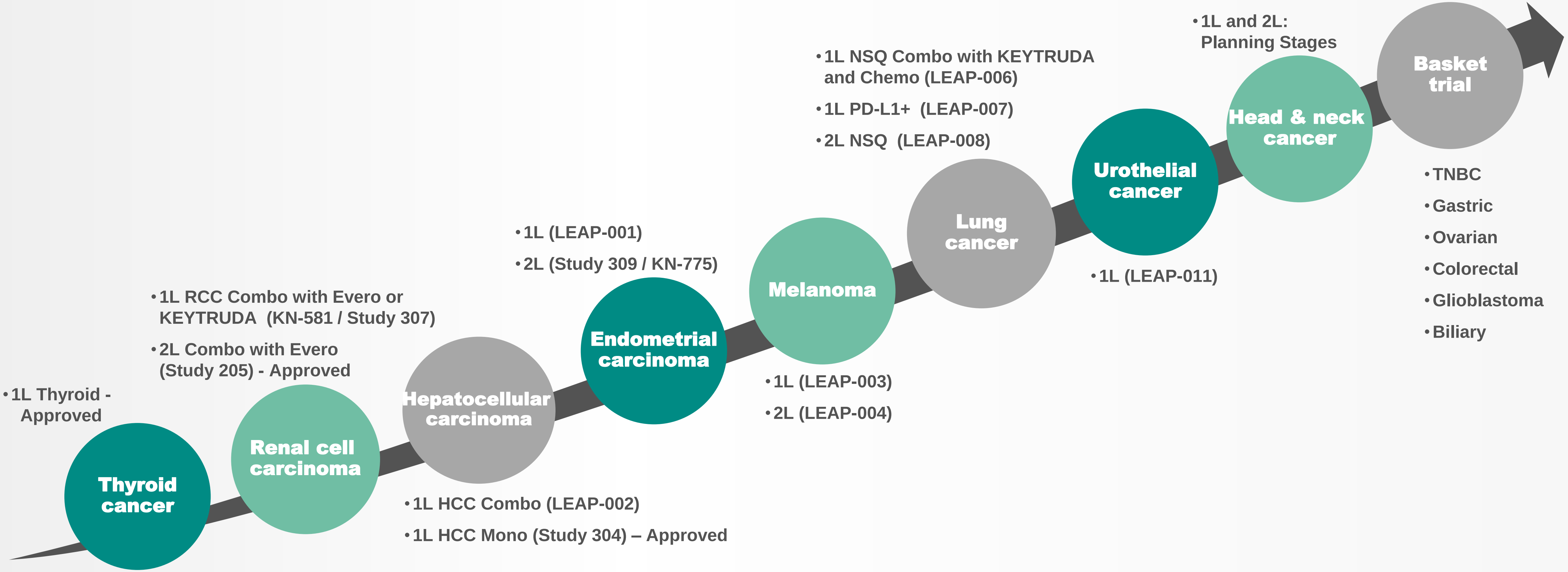
LENVIMA: POTENTIAL ACROSS BROAD RANGE OF TUMOR TYPES



13 trials studying KEYTRUDA in combination with Lenvima spanning >13 tumor types

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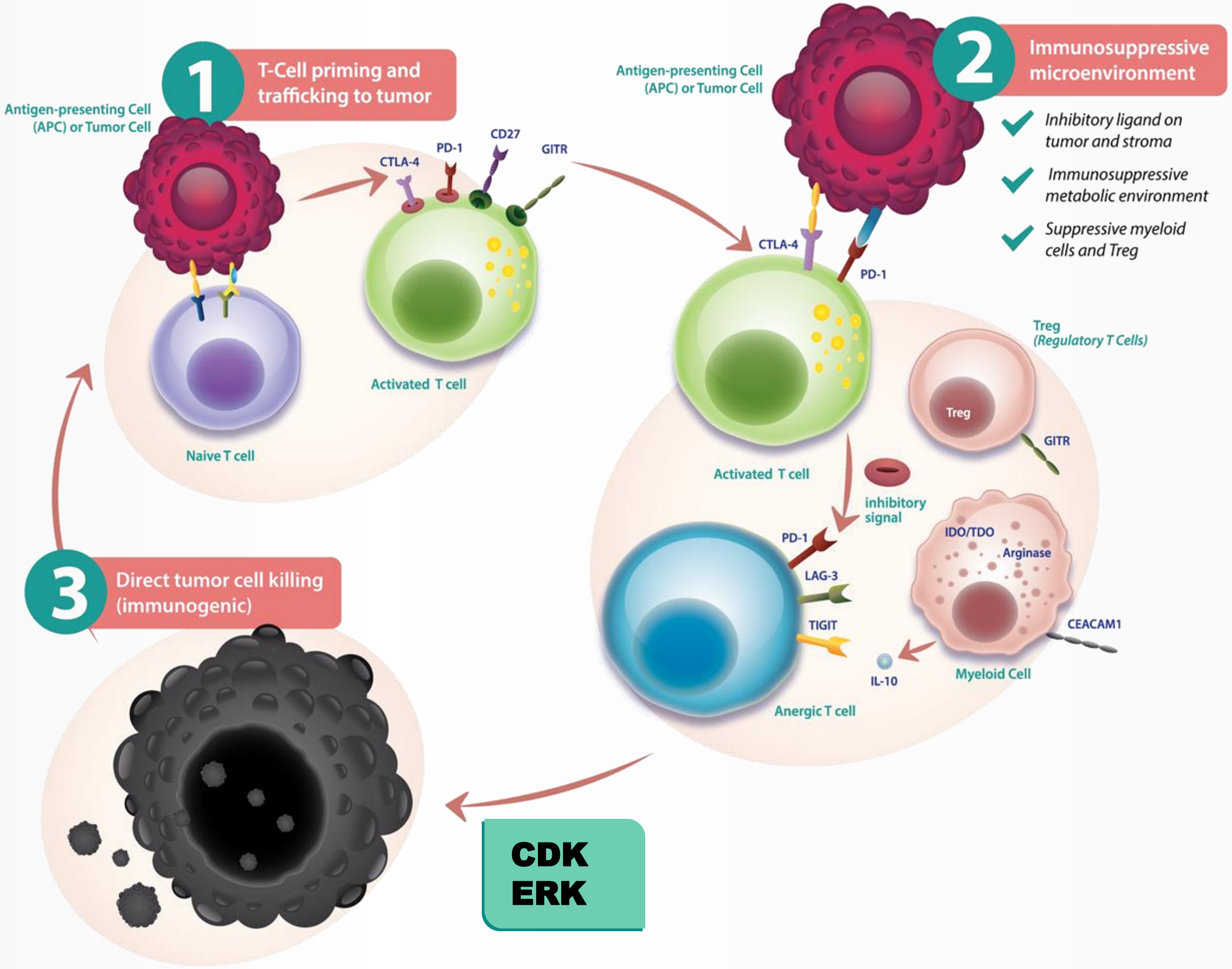
Collaboration with Eisai

EXTENSIVE ONCOLOGY PIPELINE COVERING ALL ASPECTS OF THE TUMOR ENVIRONMENT

CD27
CTLA4
CVA21
Other cancer vaccines and viruses
PCVs
RIG-I
STING



CDK
ERK

CCR5
CXCR2
GITR
IDO/TDO
ILT3
ILT4
IL10
LAG-3
PD-1
PD-1/LAG-3 bi-specific
Pi3K-delta
TGFβ
TIGIT
TLR4

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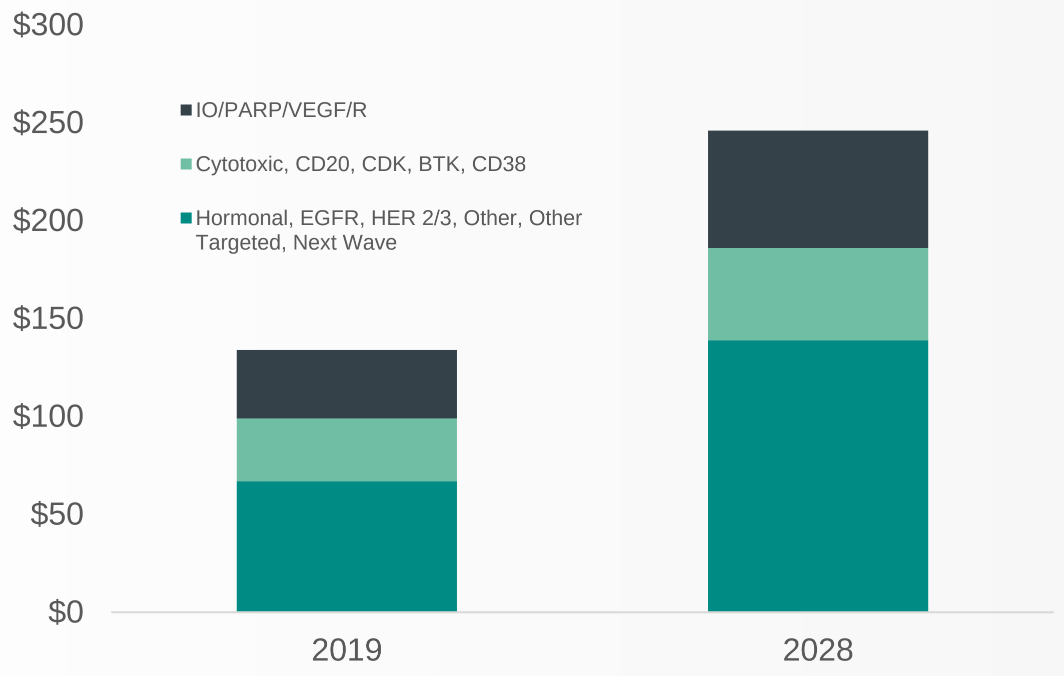
ESTABLISHING LEADERSHIP IN GROWING ONCOLOGY MARKET

- Largest I-O clinical development program in the industry
- Sizable long-term opportunity in new tumor types, including TNBC and prostate cancer
- Broad combination program with Lynparza, Lenvima and others
- Significant long-term opportunities in adjuvant / neoadjuvant settings

Global oncology market potential ($B)



Source: EvaluatePharma

Well positioned to grow faster than the market

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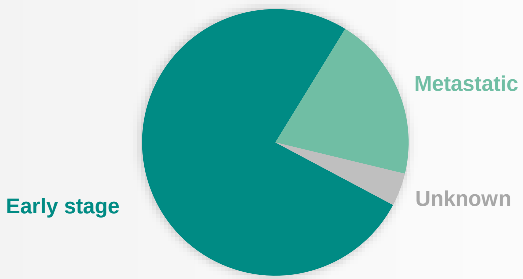
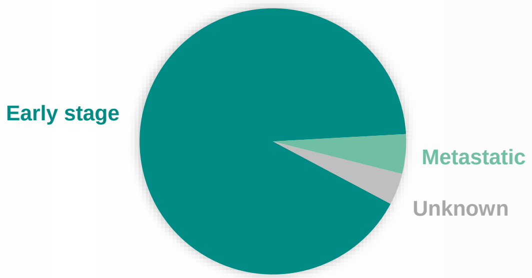
EARLY STAGE – INCLUDING ADJUVANT / NEOADJUVANT – REPRESENTS SIGNIFICANT PORTION OF CANCER PREVALENCE

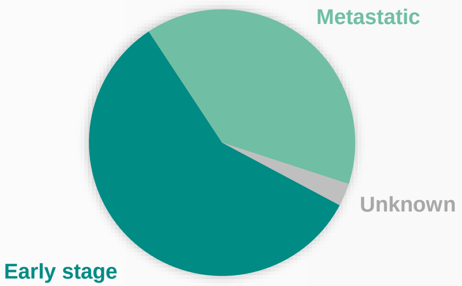
HEAD AND NECK



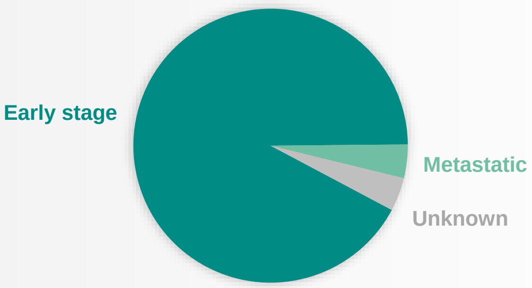
BLADDER



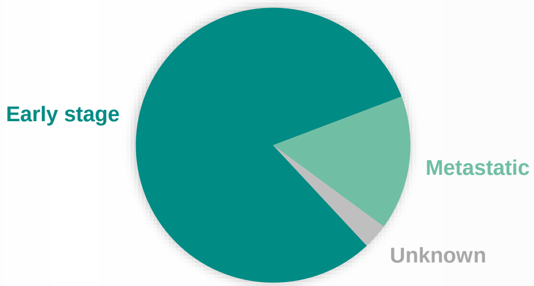
BREAST



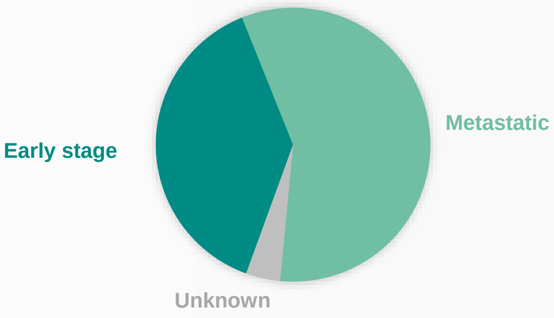
MELANOMA



RENAL



LUNG



18 registrational trials across these tumor types and more, representing meaningful growth opportunity

Source: SEER 2018: Cancer Prevalence by Stage in U.S.

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ADDRESSING TUMOR TYPES WITH HIGHEST INCIDENCE, INCLUDING BREAST AND PROSTATE

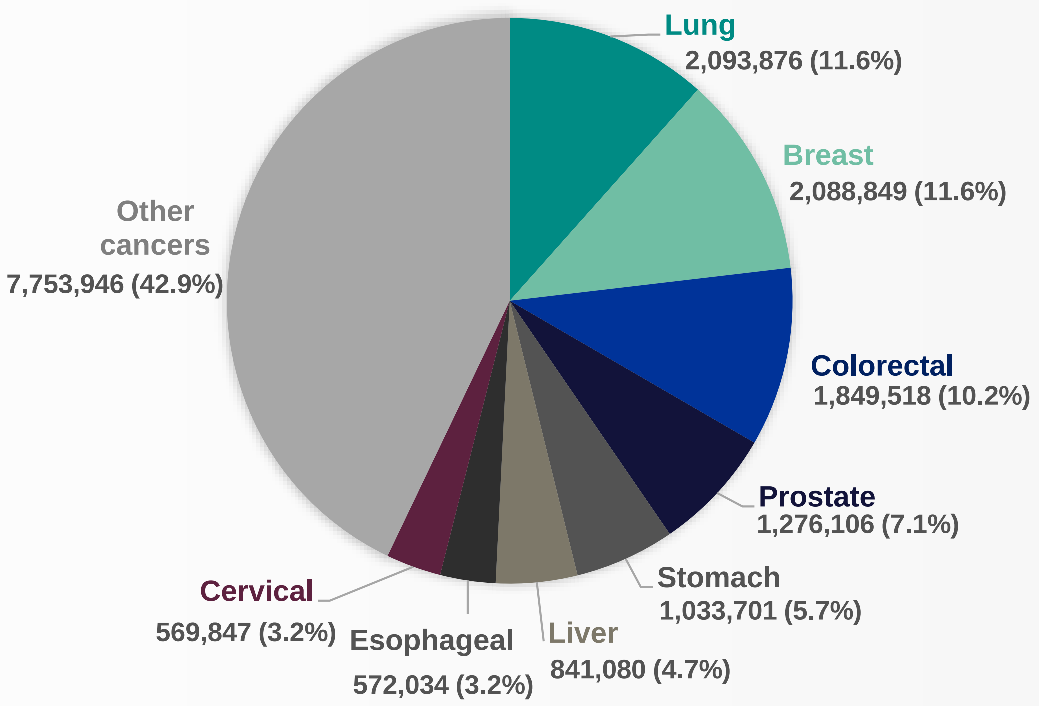
Breast cancer market expected to grow to $38B by 2028[1]

- TNBC represents 10-15% and ER+/HER2- represents ~65% of all breast cancers
- Program addresses different stages of disease and lines of therapy

Prostate cancer market expected to grow to $15B by 2028[1]

- mCRPC represents 20% and mHSPC represents 20% of all prostate cancers
- Broadest I-O development program addressing all stages of mCRPC and moving into mHSPC

Global incidence of top tumor types



Mike Nally

[1]Representative of U.S., EU5, and Japan

Source: GLOBOCAN 2018. International Cancer Research Agency 2018

EXTENSIVE VACCINES PIPELINE TARGETING DISEASES WITH SIGNIFICANT UNMET NEED

HPV
GARDASIL

- Supporting global appeals to **eliminate cervical cancer** by improving access to GARDASIL
- Increasing gender-neutral vaccination

PCV
V114 Adults & Peds
V116
Other PCVs

- Need for **prevention of residual disease**
- 13 Phase 3 trials across adults and pediatrics for V114

RSV
MK-1654
V172 (Moderna)

- Major unmet medical need in **infants and elderly**

CMV
V160

- Leading non-genetic cause of neurologic disability
- Identified by CDC / FDA and others as **area of critical need**

Dengue
V181
Instituto Butantan

- Major cause of hemorrhagic fever and death
- Partnership with Instituto Butantan allows **early access to Phase 3 study results**

Ebola
V920

- Licensing **application under review** at FDA, EMA, WHO and African countries

Others

- Addressing key areas of unmet need with **broad early vaccine pipeline**

HPV=Human papillomavirus; PCV=Pneumococcal conjugate vaccine; CMV=Cytomegalovirus; RSV=Respiratory syncytial virus

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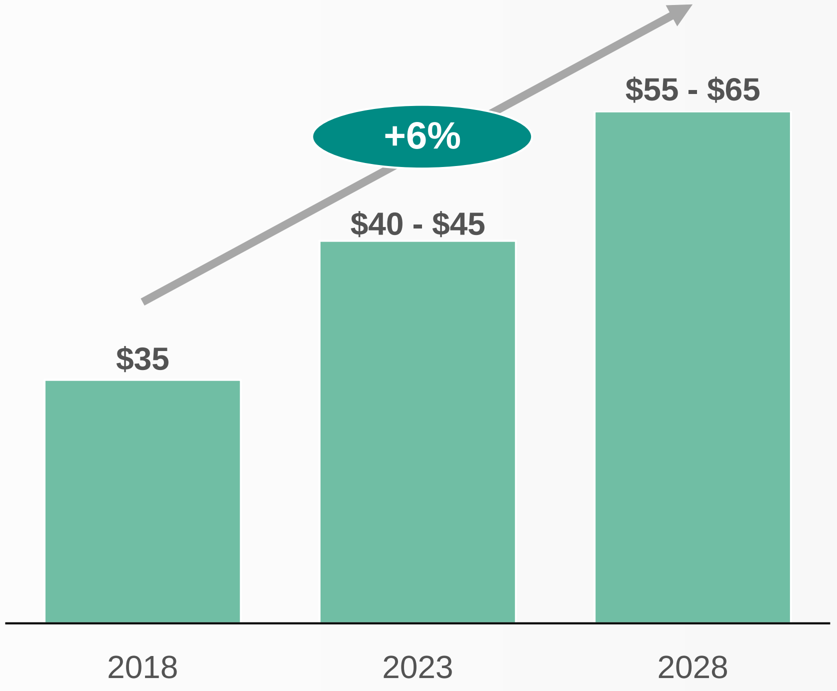
GROWING GLOBAL DEMAND FOR VACCINES PROVIDES SUSTAINABLE MARKET OPPORTUNITY

Growth over the next decade driven by:

- **Increasing Coverage:** Driving penetration of inline products in high income markets (U.S./EU)
- **Globalization:** Expanding markets and increasing penetration for inline and future pipeline products
- **Innovation:** Launching pipeline products

Global vaccines market potential ($B)[1]



[1]Source: Evaluate Pharma, IMS, Company reports, DCVM projections

Mike Nally

UNIQUE PNEUMOCOCCAL PORTFOLIO TARGETING PROTECTION IN ADULTS AND CHILDREN

PNEUMOVAX 23	V114	V116	OTHER PCVs
Foundation of adult prevention	**Advancing protection across pediatric and adult populations**	**Targeted approach to adult prevention**	**Aiming for broadest protection for pediatric population**
• Unique combination of serotype coverage and cost effectiveness	• Expanded serotype coverage to potentially address the highest burden of pneumococcal disease Awarded Breakthrough Therapy Designation in Pediatric and Adult Populations	• Focus on potential to broaden protection in adult population	• Potential to establish long-term leadership in pediatric market

FOUNDATION → **NEXT-GENERATION PNEUMOCOCCAL PIPELINE**

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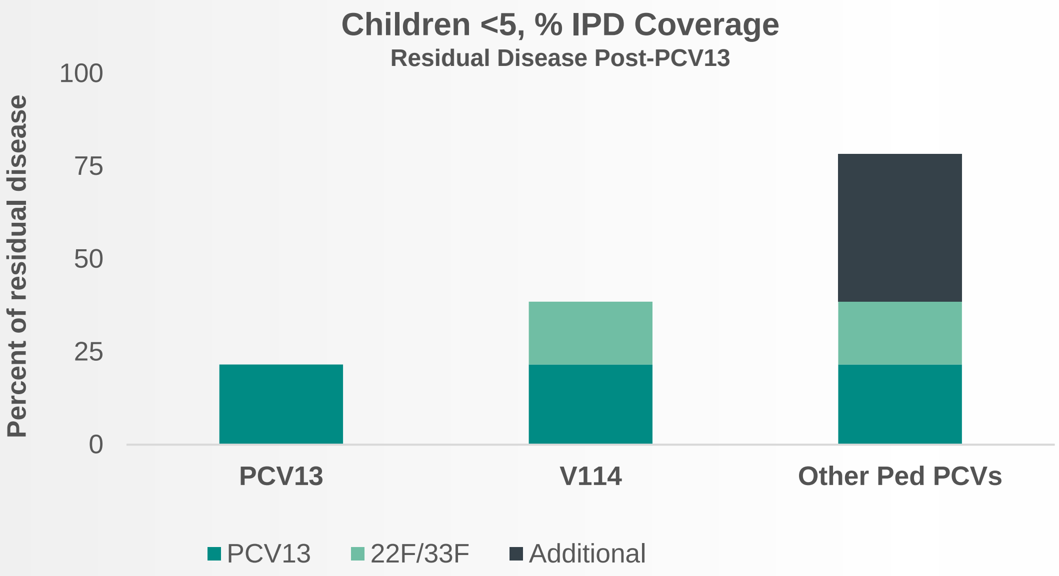
PNEUMOCCOCAL MARKET EXPECTED TO REMAIN LARGE WITH SIGNIFICANT ADDITIONAL OPPORTUNITY

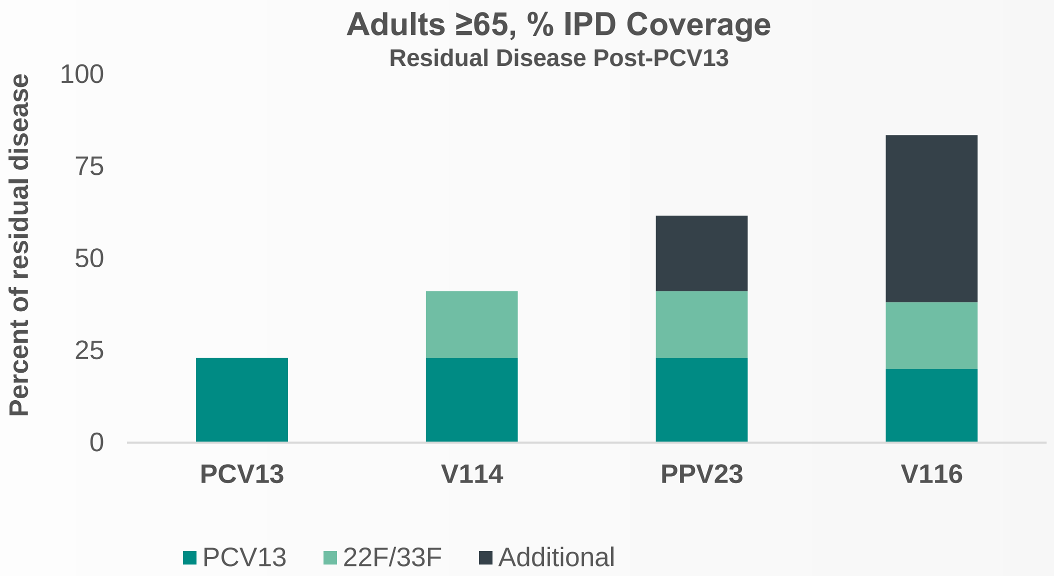
PEDIATRICS

- Represent two-thirds of market
- Even with vaccine progress, still close to 500,000 deaths annually in children <5 years old around the world



ADULTS

- Significant remaining opportunity driven by aging population, limited National Immunization Programs and low vaccination rates (~400,000 hospitalization per year in the U.S.)



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MULTIPLE PROGRAMS TARGETING A MARKET OF OVER $10B GLOBALLY

RSV

- Most common respiratory pathogen in infants with >50,000 hospitalizations each year in the U.S. alone and >3 million hospitalizations globally
- RSV infection occurs in up to 10% of adults 65 and over in the U.S. each year, resulting in >175,000 hospitalizations
- Total RSV market estimated to be >$5 billion

CMV

- #1 non-genetic cause of hearing loss in infants in the U.S.
- 0.3 - 2.0% global prevalence of congenital cytomegalovirus
- >$3 billion market size expected globally
- V160 has potential to be first in class

Dengue

- 400 million dengue infections annually with 4 billion patients at risk worldwide
- >$3 billion market size across travel and endemic segments
- V181 data suggests potential for all 4 dengue serotypes to be covered by 1 dose

CMV=Cytomegalovirus; RSV=Respiratory syncytial virus

Mike Nally

30 YEARS OF HIV INNOVATION CONTINUES

1980s

1983
HIV is discovered

1989
Role of protease published –
AZT launches

1990s

1996
CRIXIVAN® (indinavir sulfate, MSD)

1998
Once Daily STOCRIN™ (efavirenz)

2000s

2000
ACHAP[1] Partnership with Botswana and Bill and Melinda Gates Foundation

2007
ISENTRESS® raltegravir film-coated tablets 400 mg

2010s

2017
Isentress HD raltegravir

2018
Pifeltro™ doravirine

Delstrigo™ doravirine/lamivudine/tenofovir disoproxil fumarate

2020+

CONTINUING TO INNOVATE

MK-8591: Investigational NRTTI for the treatment and prevention of HIV

Many additional mechanisms in early development

[1]African Comprehensive HIV/AIDS Partnerships

MERCK INVENTING FOR LIFE

Dr. Roy Baynes

MK-8591: UNIQUE PHARMACOLOGY ENABLING POTENTIAL LONG DURATION THERAPY

Long-Duration Oral & Implantable		Oral		
Monthly	**Implantable**	**Daily**	**Weekly**	**Elimination**
Continue to simplify HIV care	Radical simplification of HIV care	Maximize simplicity, potency and tolerability	Free patients from daily dosing	Aspiring to cure
Potential to reduce risk of HIV infection ↓↓↓ Dosing frequency ↑↑↑ Adherence		Daily dosing for antiretroviral suppression	↓↓ Dosing frequency ↑↑ Adherence	Sustained viral response or cure

PREVENTION [PrEP] → **TREATMENT** → **CURE**

Dr. Roy Baynes

HIV REMAINS A PARAMOUNT WORLDWIDE HEALTH THREAT

36.9M

Number of people living with HIV

1.8M

People newly infected with HIV in 2017

940K

AIDS-related deaths in 2017

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Mike Nally

MK-8591: UNIQUE ATTRIBUTES ALIGN WELL WITH UNMET NEED

MK-8591

Simple, efficacious regimens that support lifelong therapy with high QoL

HIV UNMET NEED

Extended coverage for missed doses (forgiveness)

Pill fatigue

Reduced toxicity

Easy, effective options for PrEP

Mike Nally

GEFAPIXANT (MK-7264): EXPLORING ROLE OF P2X3 PATHWAY IN DISORDERS OF SENSORY PATHOLOGY

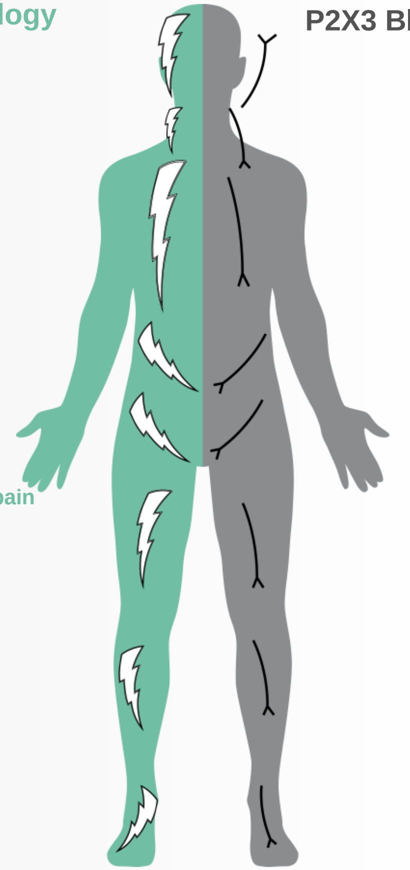
Sensory Pathology

P2X3 Blockade

Pathologically sensitized afferents send aberrant signals of disease

- Headache/migraine
- Hypertension
- Pathologic cough
- Bronchoconstriction
- Breathlessness
- Sleep apnea
- IBS-C/D
- Urinary urgency
- Bladder/pelvic pain
- Endometrial-related pain
- Neuropathic pain
- Muscle pain
- Itch

Pathologies currently being explored



Blocking P2X3 receptors may restore normal sensory function

Development focused on the role of P2X3 receptor mediated signaling in:

- Unexplained or refractory chronic cough
- Visceral pain syndromes
- Altered sympathetic function

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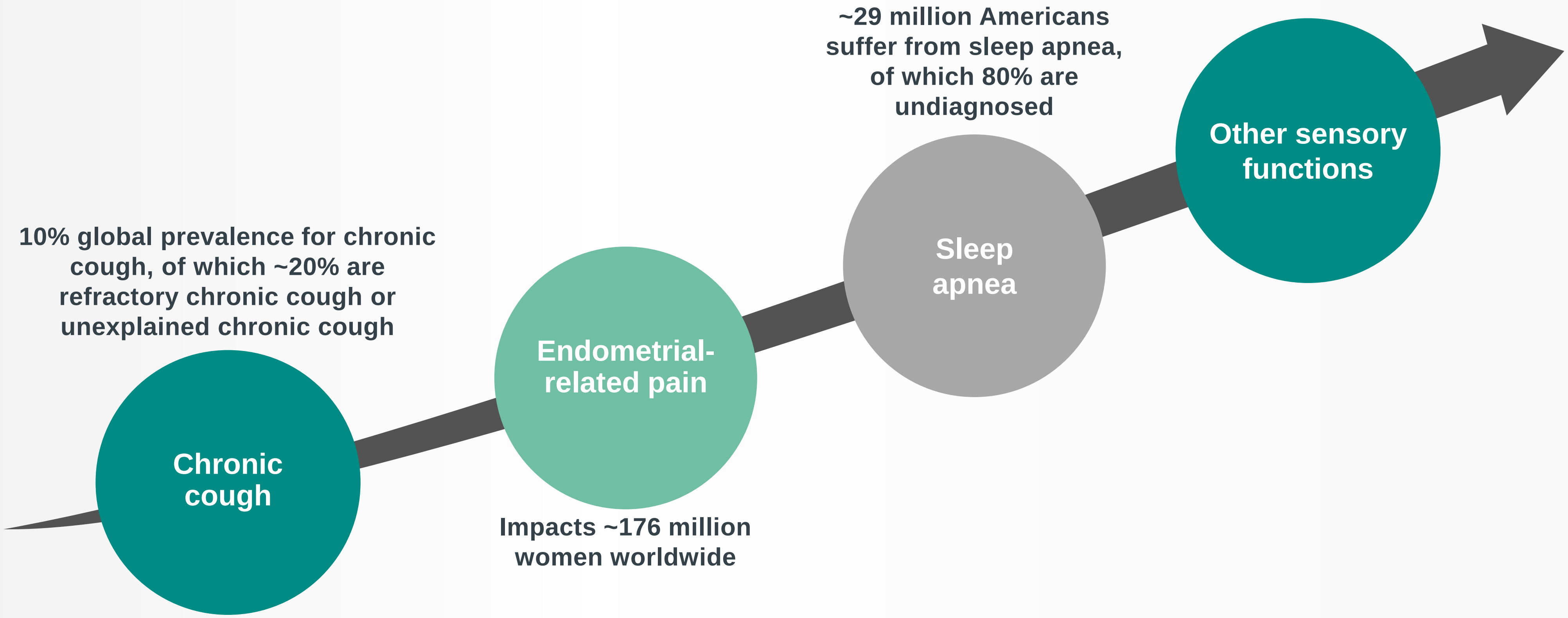
GEFAPIXANT (MK-7264): OPPORTUNITY FOR BROAD APPLICABILITY



Potential pipeline in a product

Mike Nally

DIVERSE PIPELINE WITH STRONG GROWTH POTENTIAL THROUGH NEXT DECADE

ONCOLOGY

Broadest I-O program with strong pipeline of oncology products to drive long-term leadership

VACCINES

Durable business with extensive portfolio, and pipeline and global growth opportunity

HOSPITAL / SPECIALTY

Innovative pipeline targeting areas of significant unmet need

Mike Nally