

Merck Oncology Overview

ESMO 2020



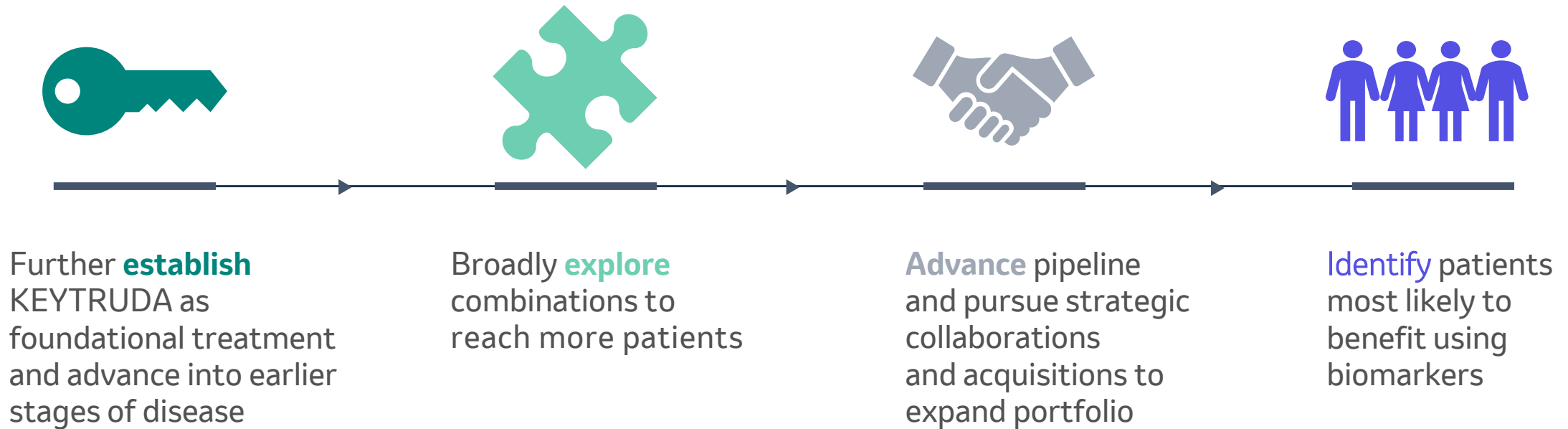
Forward-looking statement

This presentation of Merck & Co., Inc., Kenilworth, N.J., USA (the “company”) includes “forward-looking statements” within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of the company’s management and are subject to significant risks and uncertainties. There can be no guarantees with respect to pipeline products that the products will receive the necessary regulatory approvals or that they will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

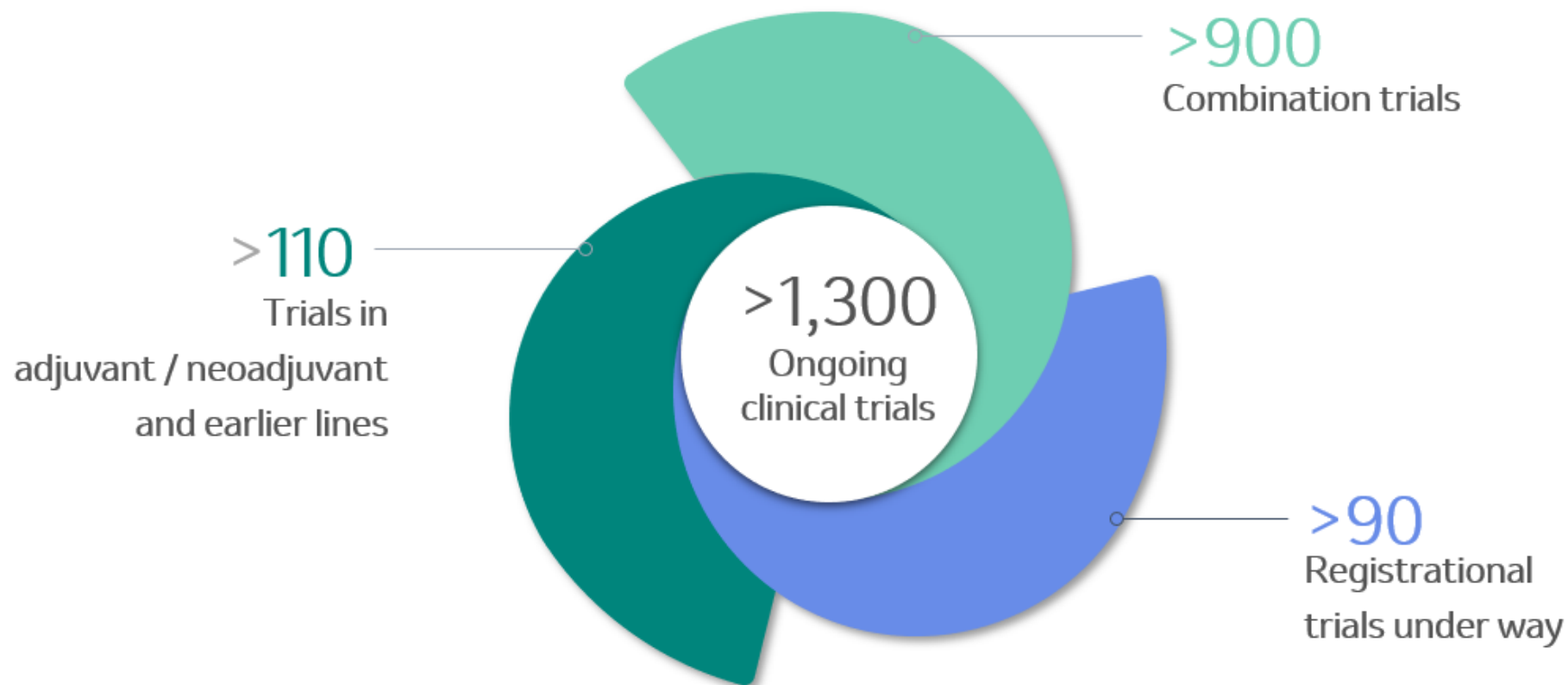
Risks and uncertainties include but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of the global outbreak of novel coronavirus disease (COVID-19); the impact of pharmaceutical industry regulation and health care legislation in the United States and internationally; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; the company’s ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of the company’s patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

The company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the company’s 2019 Annual Report on Form 10-K and the company’s other filings with the Securities and Exchange Commission (SEC) available at the SEC’s Internet site (www.sec.gov).

Extensive new data at ESMO further highlights how we are executing on a broad oncology strategy to improve outcomes for cancer patients globally



Comprehensive KEYTRUDA development program



We have an opportunity to shape the future by leveraging our robust portfolio and pipeline...

Expanding the IO-IO strategy by leveraging internal assets and expanding combination possibilities with targeted small molecules

Pembro
+
ILT4

Pembro
+
CTLA-4

Pembro
+
TIGIT

 **ARQULE**[®]
BTKi


Peloton
Therapeutics
HIF-2 α

Diversifying through partnerships with PARPi, VEGF TKI, HER2 TKI, ADCs


Lynparza[™]
olaparib
capsules 50 mg


 **LENVIMA**[®]
(lenvatinib) capsules | 10 mg and 4 mg


 **TUKYSA**[™]
tucatinib
50 mg | 150 mg tablets


Ladiratuzumab
Vedotin (LV)

Further establishing KEYTRUDA as a foundational anti-PD-1 cancer treatment in monotherapy and in combination regimens


KEYTRUDA[®]
(pembrolizumab) Injection 100 mg

*Seattle Genetics collaboration expected to close in third quarter.

ESMO 2020: New, long-term and early data from broad portfolio

Presenting New Data ...

New Phase 3 data for KEYTRUDA in 1L Esophageal (KN-590)

New combination data with KEYTRUDA + LENVIMA in melanoma and other solid tumors (LEAP-004 and LEAP-005)

Final OS data in mCRPC (PROfound)

... Demonstrating Long-Term Benefits ...

Long-term survival data for KEYTRUDA in NSCLC (KN-024), Adjuvant Melanoma (KN-054) and Head and Neck cancers (KN-048)

Long-term progression-free survival data for LYNPARZA ovarian cancer (SOLO-1)

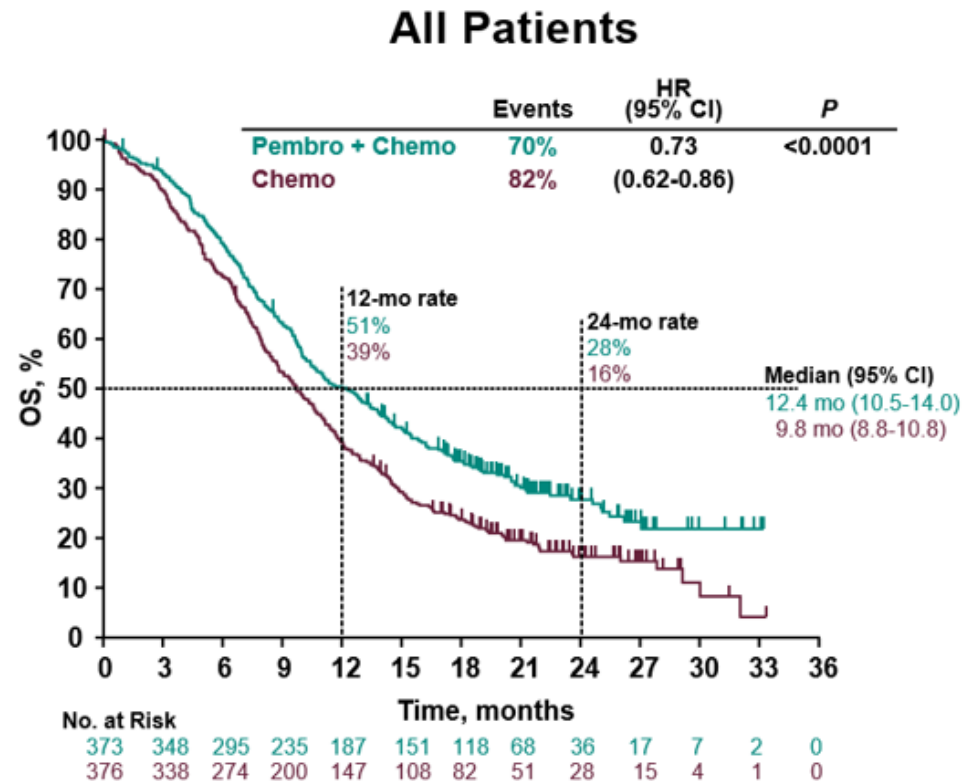
... And Progressing Novel Mechanisms

New Phase 1 data from vibostolimab (TIGIT) program in NSCLC

First-time Phase 1 data from MK-4830 (ILT4) program in solid tumors

Additional data from MK-6482 (HIF-2 α) in RCC and non-RCC malignancies

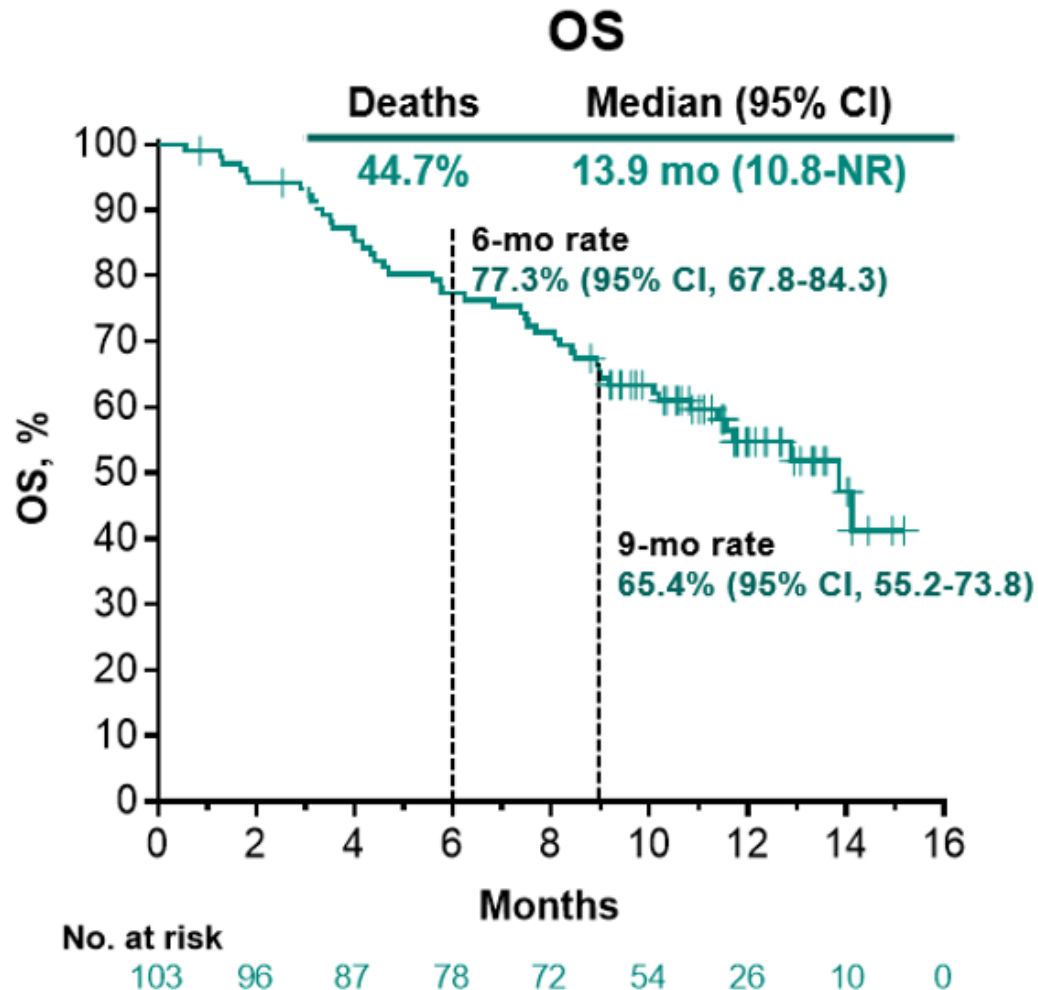
KEYNOTE-590: new KEYTRUDA data in 1L esophageal cancer in combination with chemotherapy demonstrated superior overall survival and progression-free survival compared to chemotherapy



KEYTRUDA plus chemotherapy reduced risk of death by 27% compared to chemotherapy as 1L treatment for patients with metastatic esophageal cancer, regardless of histology or PD-L1 expression status

First anti-PD-1 therapy in combination to show superior OS, PFS and ORR compared to chemotherapy, regardless of histology

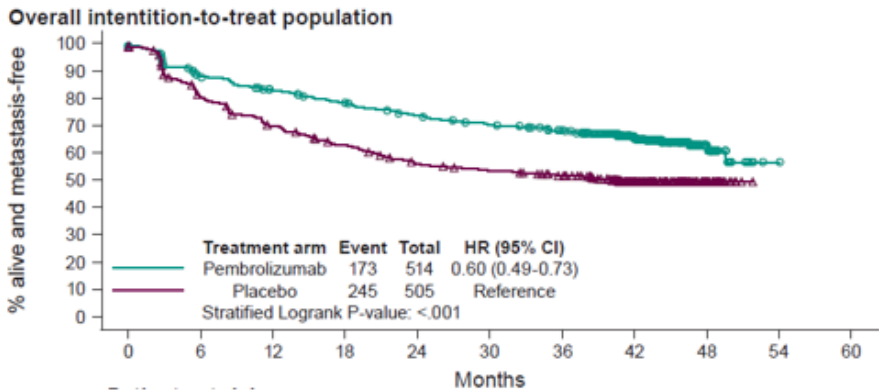
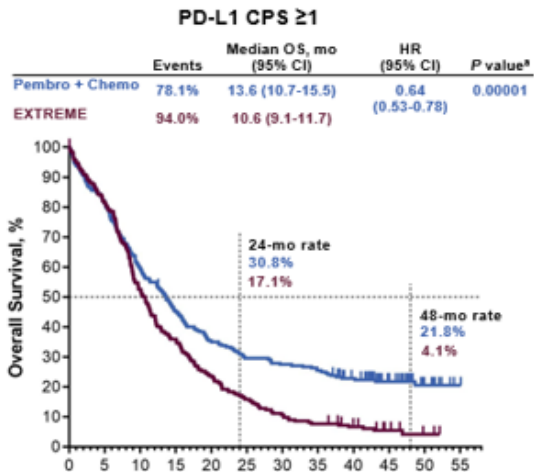
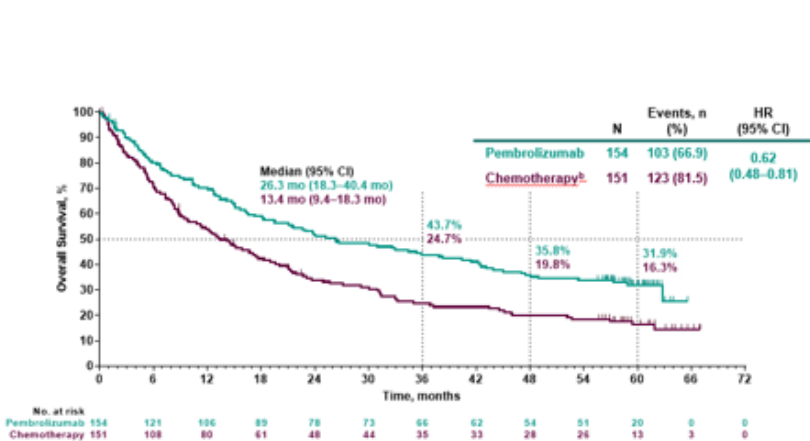
LEAP-004: KEYTRUDA + LENVIMA in stage III melanoma introduces potential new treatment for PD-1/L1 refractory patients



LENVIMA in combination with KEYTRUDA showed antitumor activity in patients with advanced melanoma with confirmed progression on a PD-1/L1 inhibitor

- 21.4% BICR-confirmed ORR by RECIST v1.1 in total population
- 31.0% BICR-confirmed ORR in patients with PD on prior anti-PD-1/L1 + anti-CTLA-4
- 13.9-month median OS

Long-term follow-up data confirm durable OS benefits of KEYTRUDA monotherapy in combination with chemo or as adjuvant following surgery



NSCLC

The survival rate after five years from patients in KN-024 doubled vs. chemotherapy in the first-line treatment of patients with metastatic NSCLC whose tumors express PD-L1 (TPS≥50%). Additionally, duration of response was nearly five times longer than chemotherapy after five years (29.1 months vs. 6.3 months).

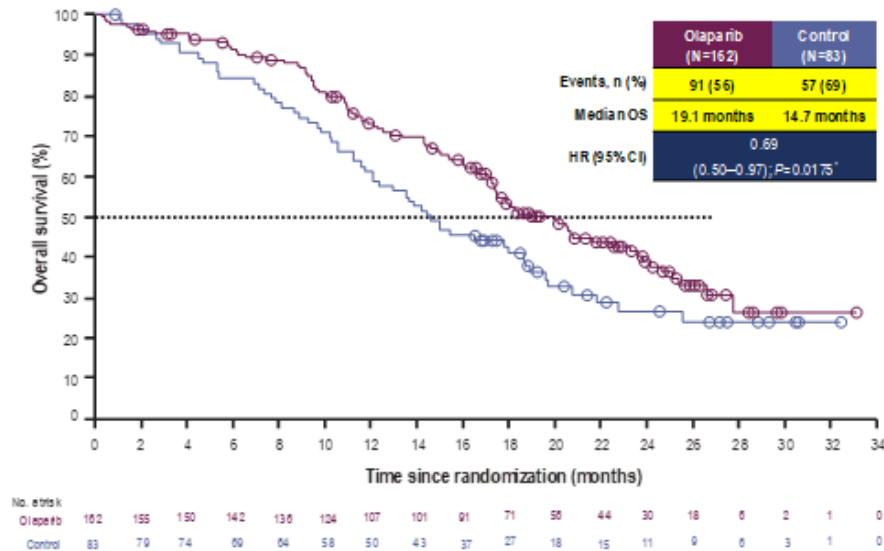
Head and Neck

Long-term follow-up from KN-048 showed improved OS in KEYTRUDA vs. EXTREME arm and in KEYTRUDA+chemotherapy arm in the total, and CPS≥20 and CPS≥1 populations.

Melanoma

In a 3-yr follow-up on KEYNOTE-054, KEYTRUDA as adjuvant therapy, provided, a sustained improvement in RFS, which was clinically meaningful, in resected high-risk stage III melanoma.

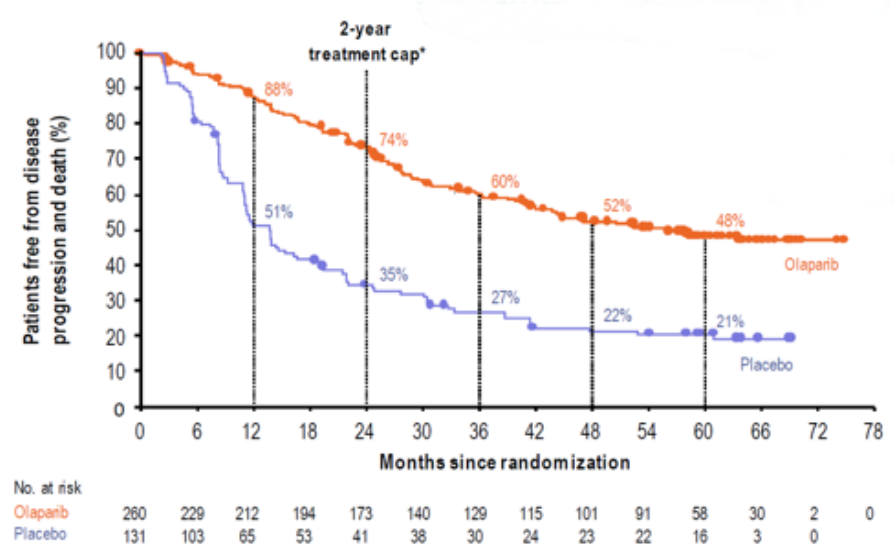
Long-term follow-up data for LYNPARZA demonstrates OS benefit in *BRCA1/2*- or *ATM*-mutated mCRPC and PFS in *BRCAm* advanced ovarian cancer



Prostate

In key secondary endpoint, following progression on enzalutamide or abiraterone, LYNPARZA reduced the risk of death by 31% vs. retreatment with enzalutamide or abiraterone for men with *BRCA1/2* or *ATM*-mutated castration resistant prostate cancer (mCRPC).

LYNPARZA is the only PARP inhibitor to demonstrate OS in mCRPC.



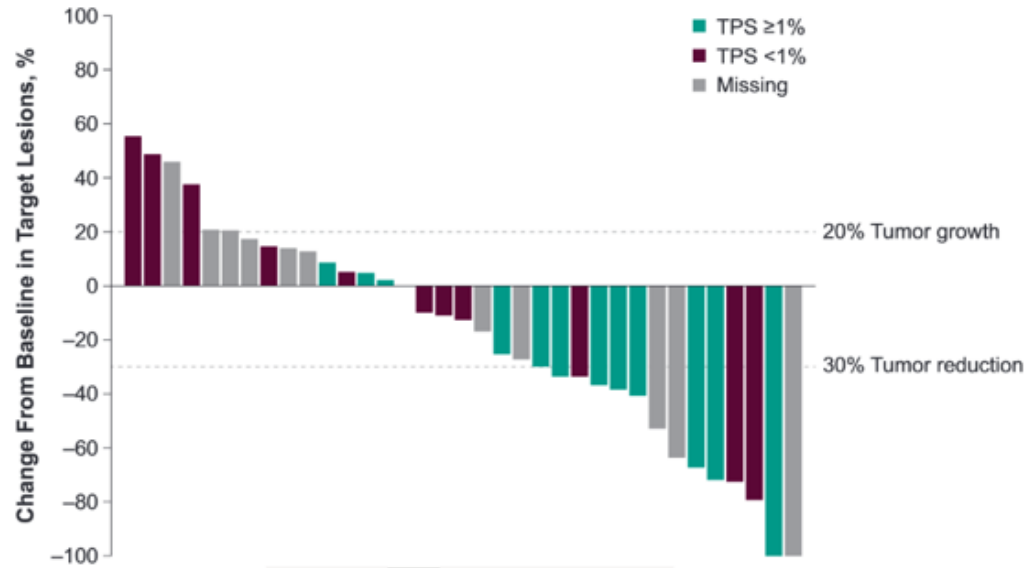
Ovarian

Five-year follow-up data from the Phase 3 SOLO-1 trial showed LYNPARZA reduced the risk of disease progression or death by 67% and improved median PFS to 56 months vs. 13.8 months for placebo in *BRCAm* advanced ovarian cancer patients.

This data represents the longest follow-up analysis for any PARP inhibitor in 1L maintenance setting "following response to platinum-based chemotherapy."

Vibostolimab (TIGIT): first-time data from cohort expansion in patients with advanced NSCLC naïve to anti-PD-1/L1 therapy show compelling response rates

Figure 1. Best Change From Baseline in Target Lesions Based on Investigator Assessment per RECIST v1.1 in Patients With Anti-PD-1/PD-L1-Naïve NSCLC^a



Vibostolimab is a monoclonal antibody that inhibits the T-Cell checkpoint inhibitor TIGIT

Vibostolimab in combination with KEYTRUDA showed compelling response rates in NSCLC patients naïve to anti-PD-1/L1 therapy

Combination showed 29% (12/41) ORR in all enrolled PD-1/L1 naïve patients and;

- TPS > 1% ORR 46%
- TPS < 1% ORR 25%

Moving to Phase 3 NSCLC in 2021

Additional exploratory studies across multiple other indications

MK-4830 (ILT4): first-time initial efficacy data from Phase 1 dose escalation study shows potential for asset in solid tumors

Investigator Assessed Confirmed Response per RECIST v1.1

n, (%)	MK-4830 n = 50	MK-4830 + Pembrolizumab n = 34	Crossover to MK-4830 + Pembrolizumab n = 18
ORR	1 (2)	8 (24)	1 (6)
CR	0	1 (3)	0
PR	1 (2)	7 (21)	1 (6)
SD	11 (22)	9 (26)	1 (6)
PD	34 (68)	16 (47)	3 (17)
No RECIST assessment ^a	4 (8)	1 (3)	13 (72) ^b

ILT4 preliminary efficacy data showed an ORR of 24% (8/34) in patients who received MK-4830 in combination with KEYTRUDA

Among 11 patients who progressed on prior PD-1 therapy, there were 5 responses (45%)

Phase 2 umbrella studies in NSCLC under way

MK-6482 (HIF-2 α): updated data on VHL-associated cRCC and non-RCC disease shows promising overall response rates

Promising clinical activity was observed with MK-6482 in treatment-naïve patients with VHL-associated RCC

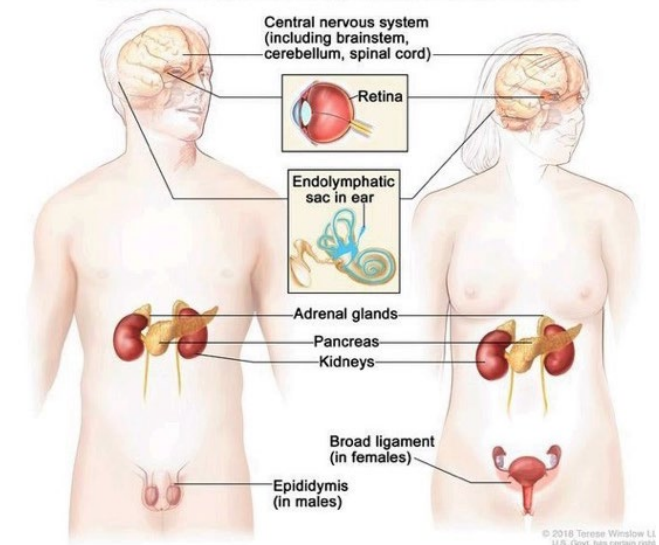
- Confirmed ORR, 36.1 % (95% CI, 24.2-49.4); 7 other patients (11.5%) experienced unconfirmed PR
- Median DOR, not yet reached; 91.8% of patients remain on study therapy

Clinical activity was also observed in non-RCC lesions

- In pancreatic lesions, confirmed ORR, 63.9% (95% CI, 50.6-75.8)
- In CNS hemangioblastomas, confirmed ORR, 30.2% (95% CI, 17.2-46.1)

In retinal lesions, 93.8% of patients had a best response of improved or stable

Areas of the Body Affected by von Hippel-Lindau Disease



Benign Tumors

- CNS Hemangioblastoma (70-80%)
- Retinal Hemangioblastoma (50-60%)
- Pancreatic Cyst and Cystadenoma (50%)
- Endolymphatic Sac Tumor of the middle ear (10-25%)
- Tumor of the Epididymis or Broad Ligament (10-60%)

Advanced/Malignant Tumors

- RCC (25-60%)
- Pheochromocytoma (10-20%)
- Pancreatic NET (10-20%)

We have pursued collaborations, licensing agreements, and acquisitions that will increase our ability to provide benefit to cancer patients

Company	Development Program	Development Stage
 Seattle Genetics *	Strategic collaborations will enable us to further diversify Merck's broad oncology portfolio and pipeline, and to continue our efforts to extend and improve the lives of as many patients with cancer as possible,	ladiratuzumab vedotin (LV) Phase 2 Tukysa – On market
 Peloton Therapeutics	Development of novel small molecule therapeutic candidates targeting HIF-2 α for the treatment of patients with cancer and other diseases	Phase 3 in sporadic RCC Phase 2 in VHL related RCC
 ARQULE	Kinase inhibitory discovery and development for treatment of patients with cancer and other diseases	Phase 2 in CLL
 Viralytics Developers of Oncolytic Immunotherapies	Gain access to an investigational intratumoral and intravenous formulation of the Coxsackievirus Type A21, designed to infect and kill cancer cells	Phase 2 in melanoma
 Tilos Therapeutics	Portfolio of investigational antibodies modulating TGF β complex for the treatment of cancer, fibrosis and autoimmune disease	Preclinical
 TAIHO ONCOLOGY, INC.  astex pharmaceuticals *	Collaboration for the development of small molecule inhibitors against several drug targets, including the KRAS oncogene	Preclinical

* Indicates strategic collaboration

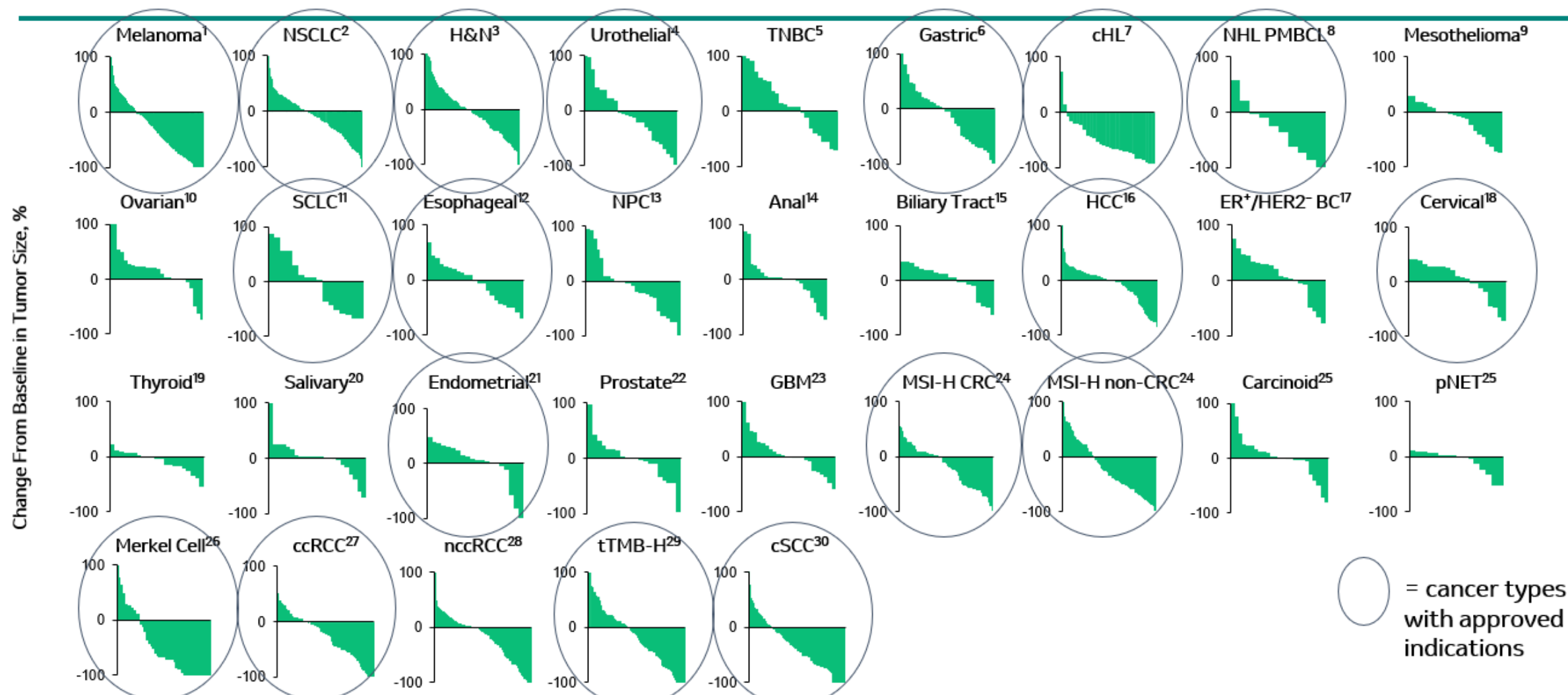
Q&A

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Appendix

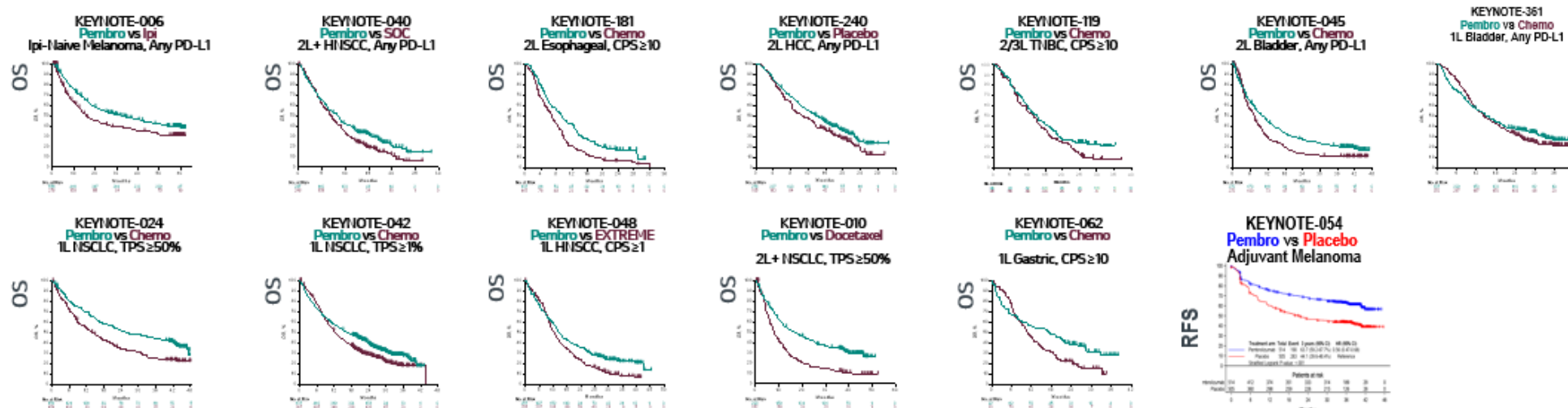
KEYTRUDA has now demonstrated activity in more than 30 different types of cancer defined by site of origin, histology, or genetic markers



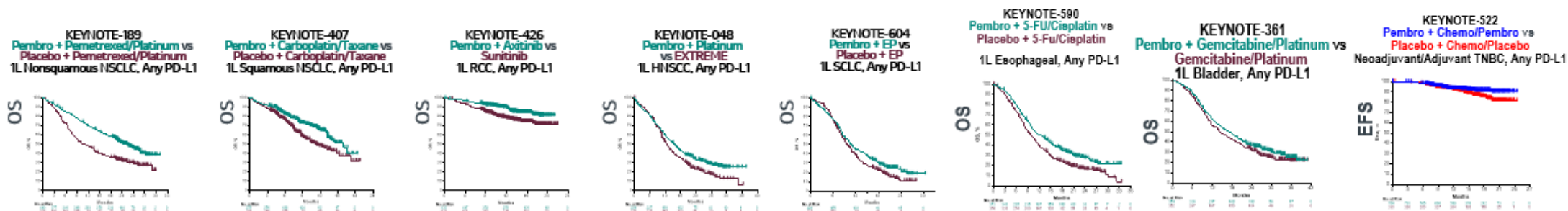
1. Daud A et al. ASCO 2015; 2. Garon EB et al. ESMO 2014; 3. Seiwert T et al. ASCO 2015; 4. Plimack E et al. ASCO 2015; 5. Nanda R et al. SABCS 2014; 6. Bang YJ et al. ASCO 2015; 7. Moskowitz C et al. ASH 2014; 8. Zinzani PL et al. ASH 2015; 9. Alley EA et al. AACR 2015; 10. Varga A et al. ASCO 2015; 11. Ott PA et al. 2015 ASCO; 12. Doi T et al. ASCO 2015; 13. Hsu C et al. ECC 2015; 14. Marabelle A et al. ASCO 2020; 15. Bang Y-J et al. ECC 2015; 16. Zhu A et al. ASCO 2018; 17. Rugo HS et al. SABCS 2015; 18. Frenel JS et al. ASCO 2016; 19. Mehnert JM et al. ASCO 2016; 20. Cohen R et al. ASCO 2016; 21. Ott PA et al. ASCO 2016; 22. Hansen AR et al. ESMO 2016; 23. Reardon D et al. SNO 2016; 24. Diaz L et al. ESMO 2017; 25. Mehnert J et al. ESMO 2017; 26. Nghiem P et al. ASCO 2018; 27. McDermott DF et al. ASCO 2018; 28. McDermott DF et al. ASCO-GU 2019; 29. Marabelle A et al. ESMO 2019; 30. Grob JJ et al. ESMO 2019.

KEYTRUDA monotherapy and in combination improved overall survival in Phase 3 studies across a broad range of malignancies

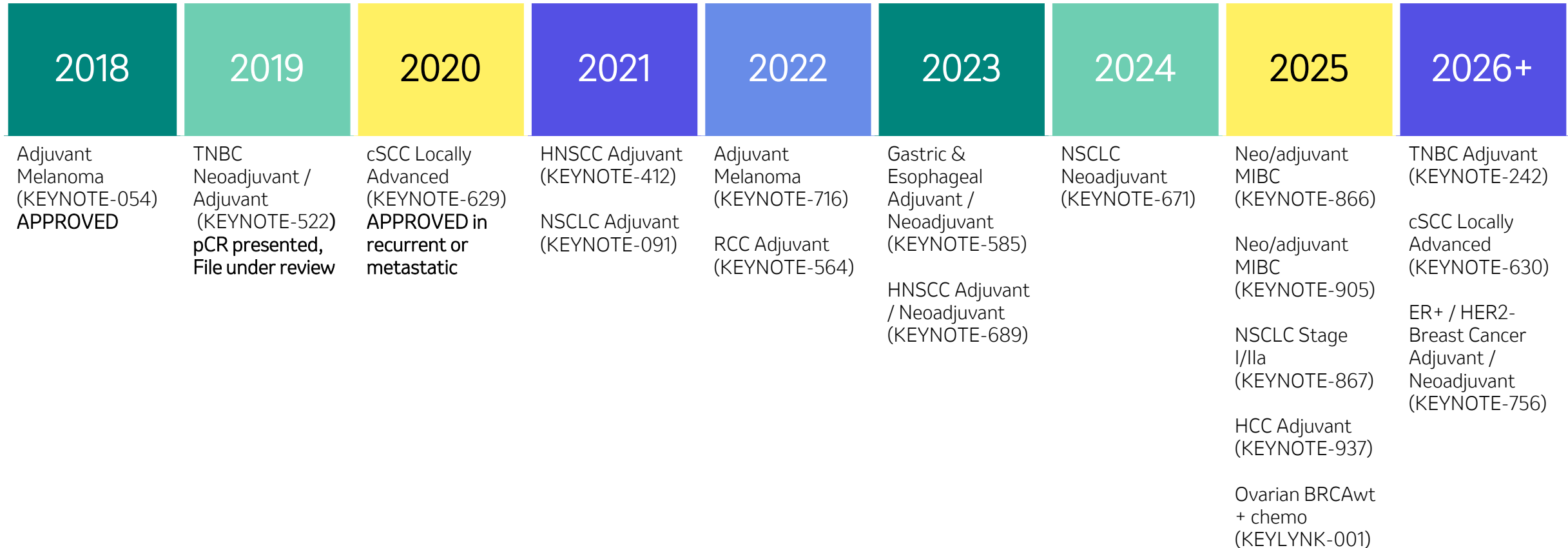
Monotherapy



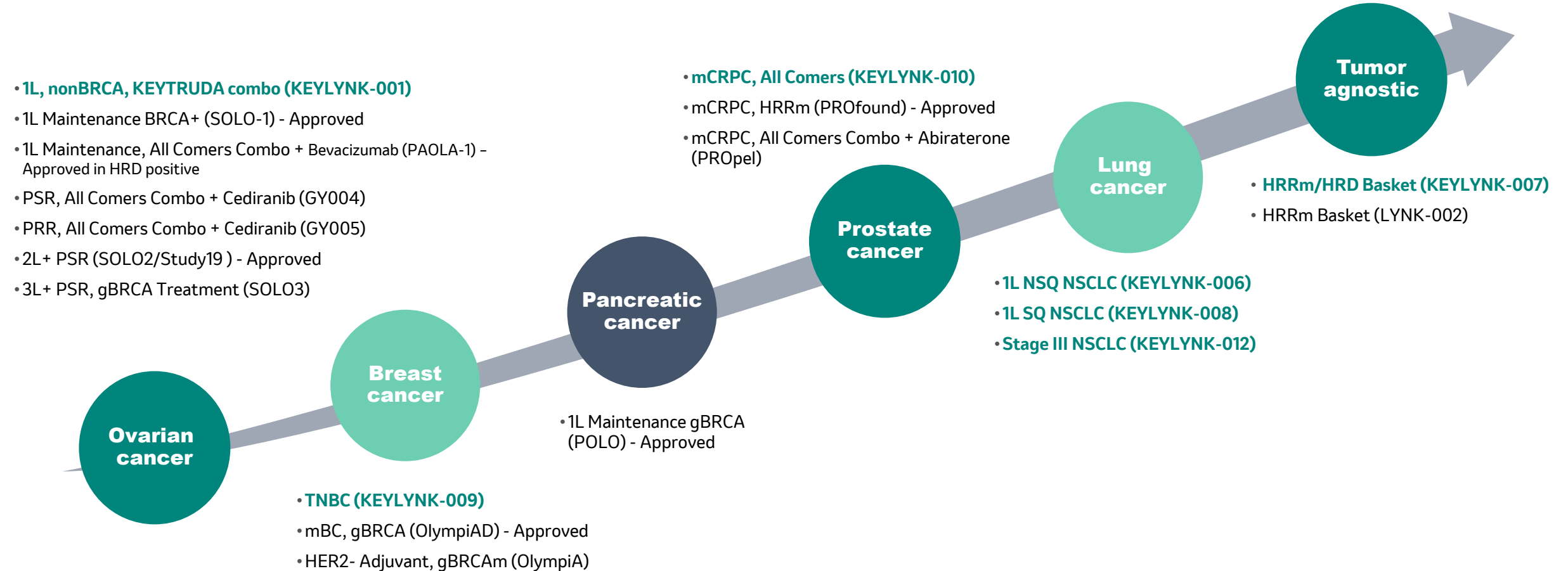
Combinations



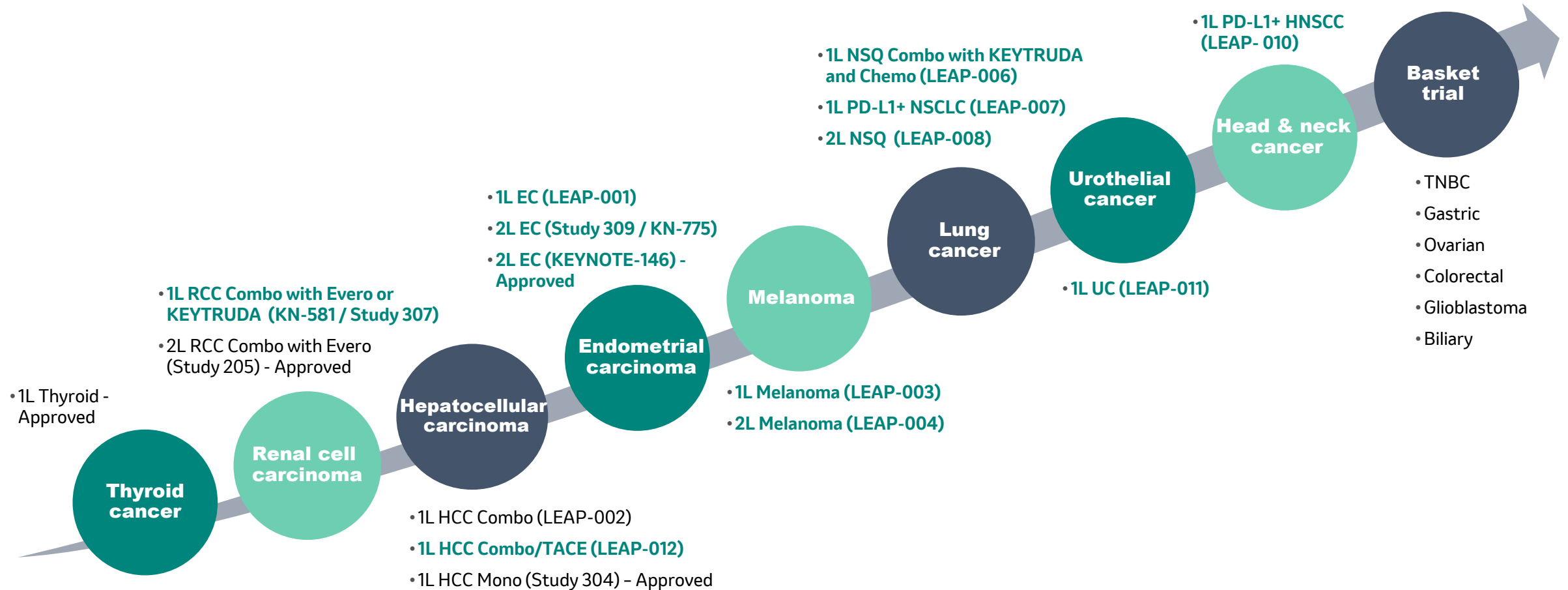
KEYTRUDA is being explored in a broad adjuvant program with 20 registrational studies ongoing



Extensive KEYTRUDA+LYNPARZA combination (KEYLYNK) and LYNPARZA monotherapy programs



Extensive KEYTRUDA+LENVIMA combination (LEAP) and LENVIMA monotherapy programs



Early oncology pipeline* includes more than 20 investigational immuno-therapeutic candidates – including novel combinations with KEYTRUDA

		Pre-Clinical	Phase 1	Phase 1/2	Phase 2
Immune Agonists	<i>Molecules designed to stimulate immune system functions, such as enhancing the activity of anti-tumor immune cells</i>		RIG-I receptor (MK-4621)		CD-27 agonist (MK-5890)
					STING agonist (MK-1454)
Inhibition of Negative Immune Regulators	<i>Blocking the action of molecules that suppress the immune system may trigger a more robust anti-tumor response</i>		ILT3 antagonist	ILT4 antagonist (MK-4830)	LAG3 (MK-4280)
					CTLA4 (MK-1308)
					TIGIT (MK-7684)
Personalized Cancer Vaccines	<i>Therapeutic vaccines based on patients' specific cancer could potentially prime the immune system to recognize certain characteristics and attack the cancer cells</i>	KRAS (Moderna) (V941 / mRNA-5671)	RNA-based vaccine (Moderna) (V940 / mRNA-4157)		
		KRAS – Taiho/Astex			
Tumor Microenvironment Modulators	<i>Regulating the environment around tumors, including through oncolytic viruses, may influence tumor growth and its interaction with the immune system</i>	TGFβ (Tilos Therapeutics)	CDK 1, 2, 5, 9 (MK-7965)		HIF-2α Inhibitor (MK-6482)
					V937 oncolytic virus (formerly CAVATAK)
					ERK Inhibitor (MK-8353)
					BTK Inhibitor (MK-1026)
					AKT Inhibitors (MK-7075 & MK-4440)

*Select compounds only