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.

Further **establish** KEYTRUDA as foundational treatment and advance into earlier stages of disease.

Broadly **explore** combinations to reach more patients.

**Advance** pipeline and pursue strategic collaborations and acquisitions to expand portfolio.

**Identify** patients most likely to benefit using biomarkers.
Comprehensive KEYTRUDA development program

- >1,300 Ongoing clinical trials
- >900 Combination trials
- >110 Trials in adjuvant / neoadjuvant and earlier lines
- >90 Registrational trials under way
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

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

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

*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-2α) 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

Data cutoff: June 10, 2020
Long-term follow-up data confirm durable OS benefits of KEYTRUDA monotherapy in combination with chemo or as adjuvant following surgery.

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).

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.

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

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.

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

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

Data cutoff: March 3, 2020
MK-4830 (ILT4): first-time initial efficacy data from Phase 1 dose escalation study shows potential for asset in solid tumors

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.

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### Investigator Assessed Confirmed Response per RECIST v1.1

<table>
<thead>
<tr>
<th>n, (%)</th>
<th>MK-4830 n = 50</th>
<th>MK-4830 + Pembrolizumab n = 34</th>
<th>Crossover to MK-4830 + Pembrolizumab n = 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORR</td>
<td>1 (2)</td>
<td>8 (24)</td>
<td>1 (6)</td>
</tr>
<tr>
<td>CR</td>
<td>0</td>
<td>1 (3)</td>
<td>0</td>
</tr>
<tr>
<td>PR</td>
<td>1 (2)</td>
<td>7 (21)</td>
<td>1 (6)</td>
</tr>
<tr>
<td>SD</td>
<td>11 (22)</td>
<td>9 (26)</td>
<td>1 (6)</td>
</tr>
<tr>
<td>PD</td>
<td>34 (68)</td>
<td>16 (47)</td>
<td>3 (17)</td>
</tr>
<tr>
<td>No RECIST assessmenta</td>
<td>4 (8)</td>
<td>1 (3)</td>
<td>13 (72)b</td>
</tr>
</tbody>
</table>

Data cutoff: July 10, 2020
MK-6482 (HIF-2α): 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-naive 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
We have pursued collaborations, licensing agreements, and acquisitions that will increase our ability to provide benefit to cancer patients.

<table>
<thead>
<tr>
<th>Company</th>
<th>Development Program</th>
<th>Development Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Genetics *</td>
<td>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,</td>
<td>ladiratuzumab vedotin (LV) Phase 2 Tukysa – On market</td>
</tr>
<tr>
<td>Peloton therapeutics</td>
<td>Development of novel small molecule therapeutic candidates targeting HIF-2α for the treatment of patients with cancer and other diseases</td>
<td>Phase 3 in sporadic RCC Phase 2 in VHL related RCC</td>
</tr>
<tr>
<td>ArQule</td>
<td>Kinase inhibitory discovery and development for treatment of patients with cancer and other diseases</td>
<td>Phase 2 in CLL</td>
</tr>
<tr>
<td>Viralytics</td>
<td>Gain access to an investigational intratumoral and intravenous formulation of the Coxsackievirus Type A21, designed to infect and kill cancer cells</td>
<td>Phase 2 in melanoma</td>
</tr>
<tr>
<td>Tilos **</td>
<td>Portfolio of investigational antibodies modulating TGFβ complex for the treatment of cancer, fibrosis and autoimmune disease</td>
<td>Preclinical</td>
</tr>
<tr>
<td>TAIHO **</td>
<td>Collaboration for the development of small molecule inhibitors against several drug targets, including the KRAS oncogene</td>
<td>Preclinical</td>
</tr>
</tbody>
</table>

* Indicates strategic collaboration
To ask a question on the operator-assisted audio line, press *1.

Note: be sure to mute your computer speakers if you are listening to the audio webcast.
Appendix
KEYTRUDA has now demonstrated activity in more than 30 different types of cancer defined by site of origin, histology, or genetic markers.

KEYTRUDA monotherapy and in combination improved overall survival in Phase 3 studies across a broad range of malignancies.
KEYTRUDA is being explored in a broad adjuvant program with 20 registrational studies ongoing.

<table>
<thead>
<tr>
<th>Year</th>
<th>Study</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Adjuvant Melanoma (KEYNOTE-054)</td>
<td>APPROVED</td>
</tr>
<tr>
<td>2019</td>
<td>TNBC Neoadjuvant / Adjuvant (KEYNOTE-522)</td>
<td>pCR presented, File under review</td>
</tr>
<tr>
<td>2020</td>
<td>cSCC Locally Advanced (KEYNOTE-629)</td>
<td>APPROVED in recurrent or metastatic</td>
</tr>
<tr>
<td>2021</td>
<td>HNSCC Adjuvant (KEYNOTE-412)</td>
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<tr>
<td>2021</td>
<td>NSCLC Adjuvant (KEYNOTE-091)</td>
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<tr>
<td>2021</td>
<td>Adjuvant Melanoma (KEYNOTE-716)</td>
<td></td>
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<tr>
<td>2021</td>
<td>RCC Adjuvant (KEYNOTE-564)</td>
<td></td>
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<tr>
<td>2022</td>
<td>Gastric &amp; Esophageal Adjuvant / Neoadjuvant (KEYNOTE-585)</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>HNSCC Adjuvant / Neoadjuvant (KEYNOTE-689)</td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td>NSCLC Neoadjuvant (KEYNOTE-671)</td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td>Neo/adjuvant MIBC (KEYNOTE-866)</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>Neo/adjuvant MIBC (KEYNOTE-905)</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>NSCLC Stage I/IIa (KEYNOTE-867)</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>HCC Adjuvant (KEYNOTE-937)</td>
<td></td>
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<tr>
<td>2025</td>
<td>Ovarian BRCAwt + chemo (KEYLYNK-001)</td>
<td></td>
</tr>
<tr>
<td>2026+</td>
<td>TNBC Adjuvant (KEYNOTE-242)</td>
<td></td>
</tr>
<tr>
<td>2026+</td>
<td>cSCC Locally Advanced (KEYNOTE-630)</td>
<td></td>
</tr>
<tr>
<td>2026+</td>
<td>ER+ / HER2- Breast Cancer Adjuvant / Neoadjuvant (KEYNOTE-756)</td>
<td></td>
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</tbody>
</table>

Timeline based on clinicaltrial.gov primary completion dates. Actual timing may vary.
Extensive KEYTRUDA+LYNPARZA combination (KEYLYNK) and LYNPARZA monotherapy programs

- **1L, nonBRCA, KEYTRUDA combo (KEYLYNK-001)**
- **1L Maintenance BRCA+ (SOLO-1) - Approved**
- **1L Maintenance, All Comers Combo + Bevacizumab (PAOLA-1) - Approved in HRD positive**
- **PSR, All Comers Combo + Cediranib (GY004)**
- **PRR, All Comers Combo + Cediranib (GY005)**
- **2L+ PSR (SOLO2/Study19) - Approved**
- **3L+ PSR, gBRCA Treatment (SOLO3)**

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

- **1L NSQ NSCLC (KEYLYNK-006)**
- **1L SQ NSCLC (KEYLYNK-008)**
- **Stage III NSCLC (KEYLYNK-012)**

- **Tumor agnostic**
  - **HRRm/HRD Basket (KEYLYNK-007)**
  - **HRRm Basket (LYNK-002)**

- **Ovarian cancer**
  - **TNBC (KEYLYNK-009)**
  - **mBC, gBRCA (OlympiAD) - Approved**
  - **HER2- Adjuvant, gBRCAm (OlympiA)**

- **Breast cancer**
  - **1L Maintenance gBRCA (POLO) - Approved**

- **Prostate cancer**
  - **1L Maintenance gBRCA (POLO) - Approved**

- **Pancreatic cancer**

- **Lung cancer**

Collaboration with AstraZeneca

PRR: Platinum Relapsed Recurrent; PSR: Platinum Sensitive Recurrent
Extensive KEYTRUDA+LENVIMA combination (LEAP) and LENVIMA monotherapy programs

- 1L RCC Combo with Evero or KEYTRUDA (KN-581 / Study 307)
- 2L RCC Combo with Evero (Study 205) - Approved
- 1L EC (LEAP-001)
- 2L EC (Study 309 / KN-775)
- 2L EC (KEYNOTE-146) - Approved
- 2L NSQ (LEAP-008)
- 1L NSQ Combo with KEYTRUDA and Chemo (LEAP-006)
- 1L PD-L1+ NSCLC (LEAP-007)

- 1L HCC Combo (LEAP-002)
- 1L HCC Combo/TACE (LEAP-012)
- 1L HCC Mono (Study 304) – Approved
- 1L Thyroid - Approved
- 1L Thyroid - Approved

- 1L Melanoma (LEAP-003)
- 2L Melanoma (LEAP-004)

- 1L Melanoma (LEAP-003)
- 2L Melanoma (LEAP-004)
- 1L UC (LEAP-011)

- 1L PD-L1+ HNSCC (LEAP-010)

- 1L Thyroid - Approved
- 1L Thyroid - Approved

- 1L UC (LEAP-011)

- Head & neck cancer

- Basket trial

- 1L Thyroid - Approved
- 1L Thyroid - Approved

- (LEAP-010)

- 1L Thyroid - Approved
- 1L Thyroid - Approved

- TNBC
- Gastric
- Ovarian
- Colorectal
- Glioblastoma
- Biliary

- Registrational studies only

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

<table>
<thead>
<tr>
<th>Immune Agonists</th>
<th>Molecules designed to stimulate immune system functions, such as enhancing the activity of anti-tumor immune cells</th>
<th>Pre-Clinical</th>
<th>Phase 1</th>
<th>Phase 1/2</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RIG-I receptor (MK-4621)</td>
<td></td>
<td></td>
<td>CD-27 agonist (MK-5890)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhibition of Negative Immune Regulators</th>
<th>Blocking the action of molecules that suppress the immune system may trigger a more robust anti-tumor response</th>
<th>Pre-Clinical</th>
<th>Phase 1</th>
<th>Phase 1/2</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ILT3 antagonist</td>
<td></td>
<td>ILT4 antagonist (MK-4830)</td>
<td>LAG3 (MK-4280)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personalized Cancer Vaccines</th>
<th>Therapeutic vaccines based on patients’ specific cancer could potentially prime the immune system to recognize certain characteristics and attack the cancer cells</th>
<th>Pre-Clinical</th>
<th>Phase 1</th>
<th>Phase 1/2</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRAS (Moderna) (V941 / mRNA-5671)</td>
<td>RNA-based vaccine (Moderna) (V940 / mRNA-4157)</td>
<td></td>
<td></td>
<td>HIF-2α inhibitor (MK-6482)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tumor Microenvironment Modulators</th>
<th>Regulating the environment around tumors, including through oncolytic viruses, may influence tumor growth and its interaction with the immune system</th>
<th>Pre-Clinical</th>
<th>Phase 1</th>
<th>Phase 1/2</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGFβ (Tilos Therapeutics)</td>
<td>CDK1, 2, 5, 9 (MK-7965)</td>
<td></td>
<td></td>
<td>V937 oncolytic virus (formerly CAVATAK)</td>
<td></td>
</tr>
</tbody>
</table>

*Select compounds only