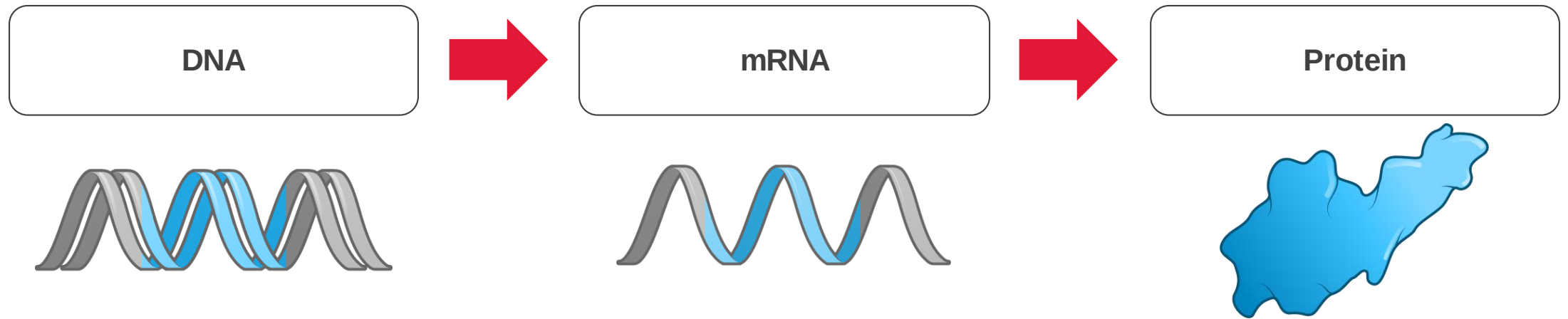




38th Annual J.P. Morgan Healthcare Conference

Stéphane Bancel, CEO

January 13th, 2020

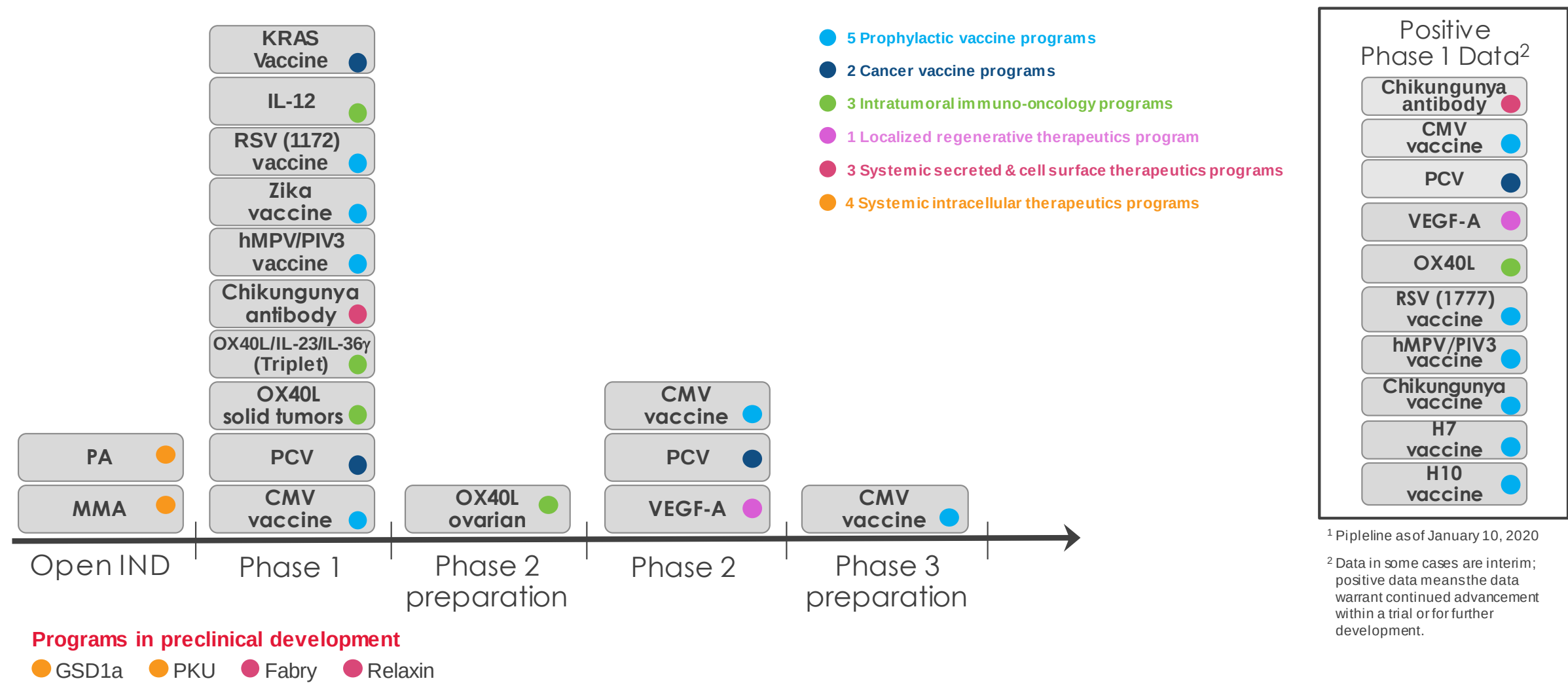
Forward-looking statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended including, but not limited to, statements concerning: clinical program next steps; clinical de-risking of its prophylactic vaccines and systemic secreted and cell surface therapeutics modalities; the success of its new autoimmune modality, including its two new development candidates; development candidate activities; development candidate opportunities; future clinical study commencement; expected clinical progression, enrollment, and conclusion, regulatory submissions and approvals, risk management, estimates and forward-looking projections with respect to Moderna or its anticipated future performance or events; the Company's expected cash, cash equivalents, and investments and grant funding status at December 31, 2019; and the Company's expected net cash used in operating activities and purchases of property and equipment in 2020. In some cases, forward-looking statements can be identified by terminology such as "may," "should," "expects," "intends," "plans," "aims," "anticipates," "believes," "estimates," "predicts," "potential," "continue," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. The forward-looking statements in this presentation are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties and other factors, many of which are beyond Moderna's control and which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties and other factors include, among others: preclinical and clinical development is lengthy and uncertain, especially for a new category of medicines such as mRNA, and therefore Moderna's preclinical programs or development candidates may be delayed, terminated, or may never advance to or in the clinic; no mRNA drug has been approved in this new potential class of medicines, and may never be approved; mRNA drug development has substantial clinical development and regulatory risks due to the novel and unprecedented nature of this new class of medicines; and those described in Moderna's most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent filings made by Moderna with the SEC, which are available on the SEC's website at www.sec.gov. Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements in this presentation in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna's current expectations and speak only as of the date hereof.

Note Regarding Trademarks

Moderna is the owner of various U.S. federal trademark registrations ("®") of and other trademarks ("TM"). Certain other trademarks, trade names and service marks appearing in this presentation are the property of third parties. Solely for convenience, the trademarks and trade names in this presentation are referred to without the ® and TM symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

Moderna's development pipeline¹



¹ Pipeline as of January 10, 2020

² Data in some cases are interim; positive data means the data warrant continued advancement within a trial or for further development.

Major events in four modalities in 2019



Prophylactic vaccines

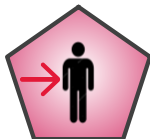
CMV vaccine

hMPV/PIV3 vaccine



Cancer vaccines

PCV



Systemic secreted & cell surface therapeutics

Chikungunya antibody



Systemic intracellular therapeutics

MMA

PA

Congenital cytomegalovirus overview

- Cytomegalovirus: CMV is a common infection and is the leading cause of birth defects in the US
 - 0.65% of US newborns infected annually (~25,000 US newborns)
- **Disease burden:** Significant impact on survivors, families, caregivers and health systems
 - 20% of newborns with CMV infection have permanent neurodevelopmental disability
 - 10-30% of infants with severe CMV disease will die in their first year of life
- **Unmet need:** No approved CMV vaccine

CMV infection sequelae	
Neonatal period	• Jaundice • Microcephaly • Hearing loss • Vision loss • Seizures • Low birth weight
Infancy, childhood, adulthood	• Deafness/Hearing loss • Neurodevelopmental delay • Seizures

Moderna concept: mRNA vaccine, IM-administered, designed to make gB and Pentamer antigens in their natural conformations to prevent or control CMV infection

CMV vaccine (mRNA-1647)

Immunogenicity from 7-month data confirms and builds on 3-month data

- **Safety¹:**
 - Generally well-tolerated
 - No vaccine-related serious adverse events
- **CMV-seronegative group at seven months (after third vaccination):**
 - Epithelial cell assay titers >10-fold higher than CMV-seropositive baseline titers at 90 and 180 µg
 - Fibroblast assay titers 1.4-fold higher than CMV-seropositive baseline titers at 90 and 180 µg
- **CMV-seropositive group at seven months (after third vaccination):**
 - Boosted epithelial cell assay titers to 22-fold to 40-fold over baseline
 - Boosted fibroblast assay titers to 4-fold to 6-fold over baseline
- **Early evidence of durability out to 12 months**

¹The most common solicited local adverse reaction (AR) across all vaccinations was injection site pain. The most common solicited systemic ARs were headache, fatigue, myalgia and chills. The most common Grade 3 solicited ARs were in CMV-seropositive participants, and were fatigue, chills and fever. In general, the highest solicited systemic AR rates were reported after the second vaccination, were more frequent in the CMV-seropositive compared to the CMV-seronegative group, and tended to correlate to dose.

Phase 2 trial started; Phase 3 preparations ongoing for CMV vaccine (mRNA-1647)

Phase 2 dose confirmation study

- 3 dose levels; randomized, double-blind, placebo-controlled
- 252 seronegative & seropositive adults
- Utilizes intended phase 3 formulation; same LNP used in phase 1
- 12 U.S. sites
- **First interim analysis:** safety and immunogenicity data through 1 month after second vaccination, anticipated in 2H20

Pivotal phase 3 trial

- **Primary endpoint:** prevention of primary CMV infection in a population that includes women of childbearing age (WOCBA)
- Intended to begin in 2021; in USA and Europe
- Expect **<8,000 participants**
- Preparation and product manufacturing underway

CMV is a blockbuster opportunity

- Estimated annual peak sales of \$2-5 billion
- Assuming GARDASIL² like ASP; GM estimated to be +90%³ (EBIT margins of approximately 50%)
- NEJM phase 2 publication by Pass et al shows 50% vaccine efficacy with Sanofi's vaccine targeting only the gB antigen
- Moderna owns worldwide rights to mRNA-1647



• **>\$3 billion market size expected globally**

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Vaccine Prevention of Maternal Cytomegalovirus Infection

Robert F. Pass, M.D., Changpin Zhang, M.D., Ashley Evans, M.D., Tina Simpson, M.D., William Andrews, M.D., Meei-Li Huang, Ph.D., Lawrence Corey, M.D., Janie Hill, R.N., Elizabeth Davis, R.N., M.P.H., Cynthia Flanigan, B.S., and Gretchen Cloud, M.S.

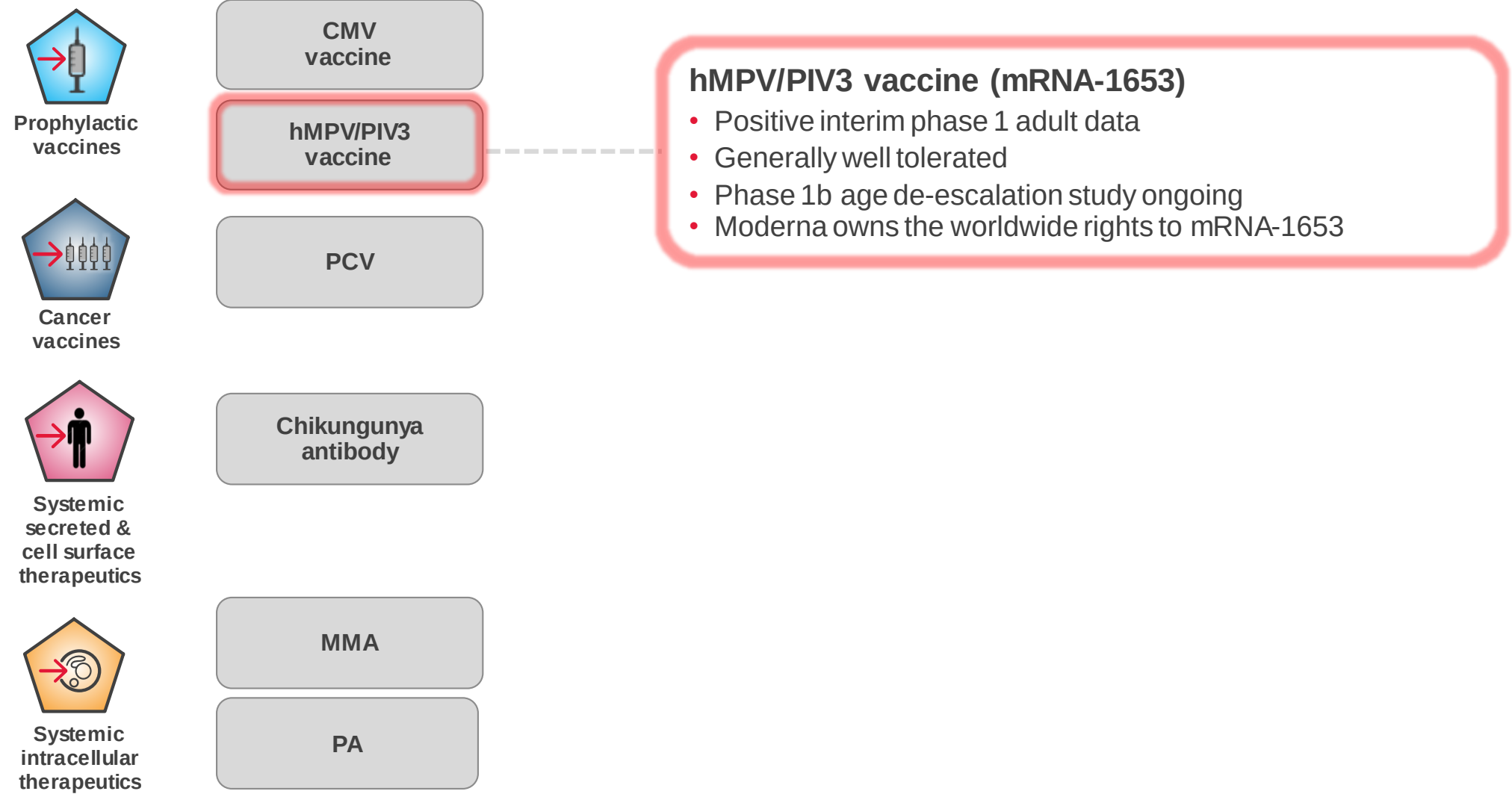
We believe our CMV vaccine (mRNA-1647) will build Moderna's future and embodies our mission

¹Merck investor day, 2019

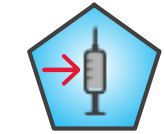
²GARDASIL ® is a registered trademark of Merck & Co., Inc

³Gross margin at scale in the U.S.

Major events in four modalities in 2019



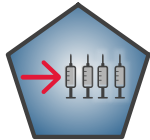
Major events in four modalities in 2019



Prophylactic
vaccines

CMV
vaccine

hMPV/PIV3
vaccine



Cancer
vaccines

PCV



Systemic
secreted &
cell surface
therapeutics

Chikungunya
antibody



Systemic
intracellular
therapeutics

MMA

PA

Personalized Cancer Vaccine (mRNA-4157)

- Positive interim phase 1 data reported at ASCO
- Well tolerated at all dose levels studied with no dose limiting toxicities reported
- Neoantigens specific CD8+ T-cell responses were detected in 10/18 class 1 antigens in 1 patient
- Phase 2 randomized controlled study with our PCV plus KEYTRUDA® versus KEYTRUDA® alone is ongoing; n=150 with 22 patients enrolled
- Moderna shares rights to mRNA-4157 with Merck

Major events in four modalities in 2019



Prophylactic
vaccines

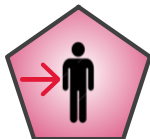
CMV
vaccine

hMPV/PIV3
vaccine



Cancer
vaccines

PCV



Systemic
secreted &
cell surface
therapeutics

Chikungunya
antibody



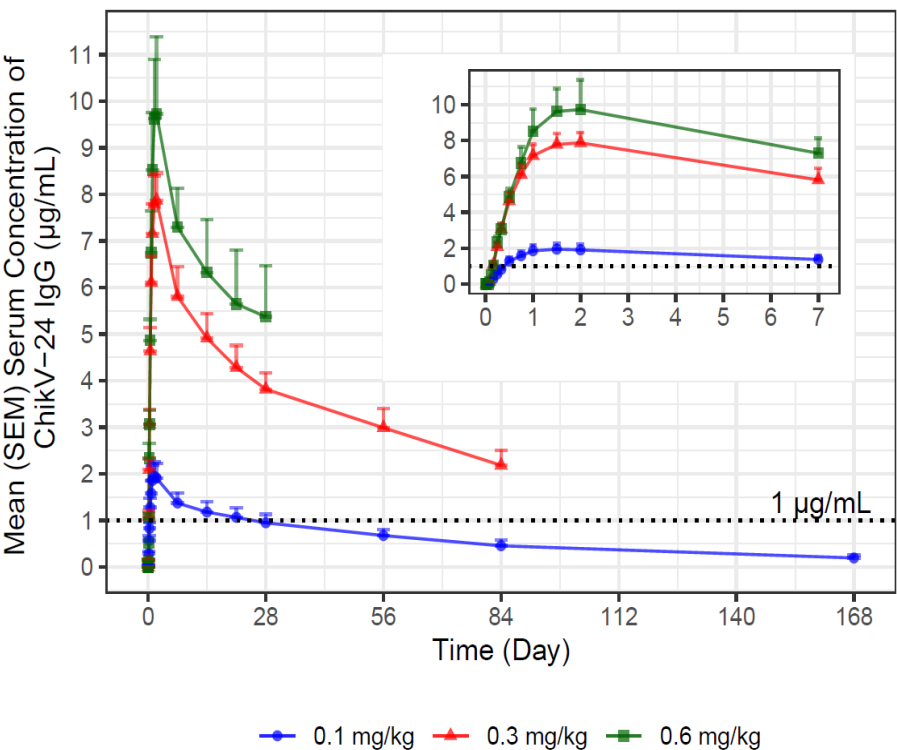
Systemic
intracellular
therapeutics

MMA

PA

Antibody against Chikungunya virus (mRNA-1944)

Protective antibody levels of >1µg/mL expected to endure at least 16 weeks at the middle dose of 0.3 mg/kg immunity



Cohort	0.1 mg/kg (N=6)	0.3 mg/kg (N=6)	0.6 mg/kg (N=4)
C _{max} (µg/mL)	2.0	7.9	10.2
C _{max} range (µg/mL)	1.1-3.1	6.3-10.0	7.0-14.2
C _{max} % CV	40.6%	18.2%	29.7%

Pharmacology

- Administration of mRNA-1944 resulted in dose-related increase in levels of CHKV-24
- Half life (t_{1/2}) of antibody was 62 days
- Middle and high dose (0.3 and 0.6 mg/kg) projected to exceed 1 µg/mL target for at least 16 weeks

Safety¹: None of the participants treated with mRNA-1944 at the low (0.1 mg/kg) or middle (0.3 mg/kg) doses experienced significant AEs. Three of the four participants at the high (0.6 mg/kg) dose had infusion related AEs, with the highest grade by subject being Grade 1 (n=1), Grade 2 (n=1) and Grade 3 (n=1)

¹All AEs were transient and resolved spontaneously without treatment; no serious AEs in the study; No meaningful changes in liver or kidney laboratory results

Major events in four modalities in 2019



Prophylactic vaccines

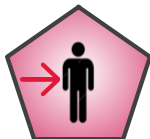
CMV vaccine

hMPV/PIV3 vaccine



Cancer vaccines

PCV



Systemic secreted & cell surface therapeutics

Chikungunya antibody



Systemic intracellular therapeutics

MMA

PA

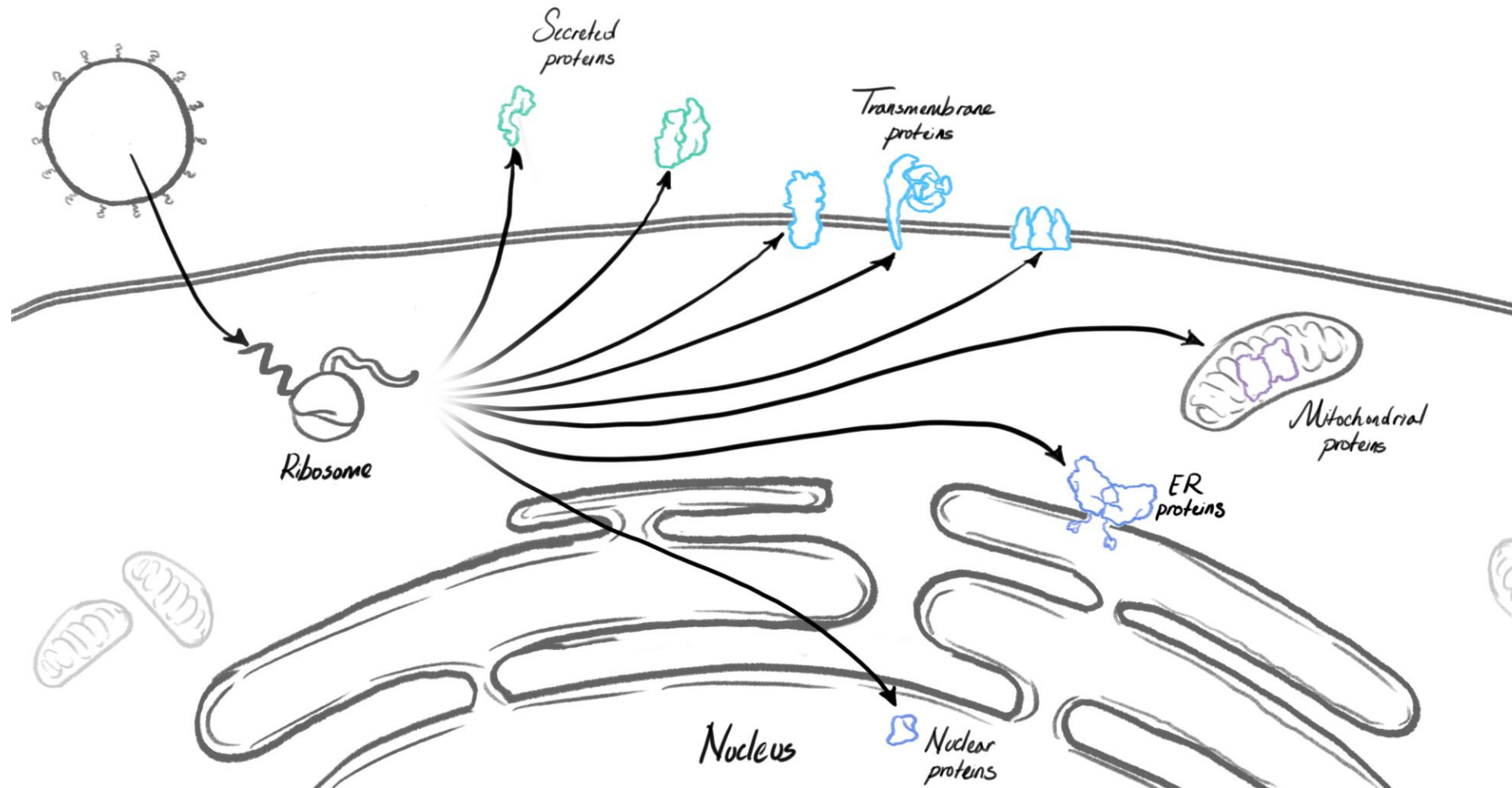
MMA (mRNA-3704)

- Actively recruiting patients in phase 1/2
- FDA fast track status

PA (mRNA- 3927)

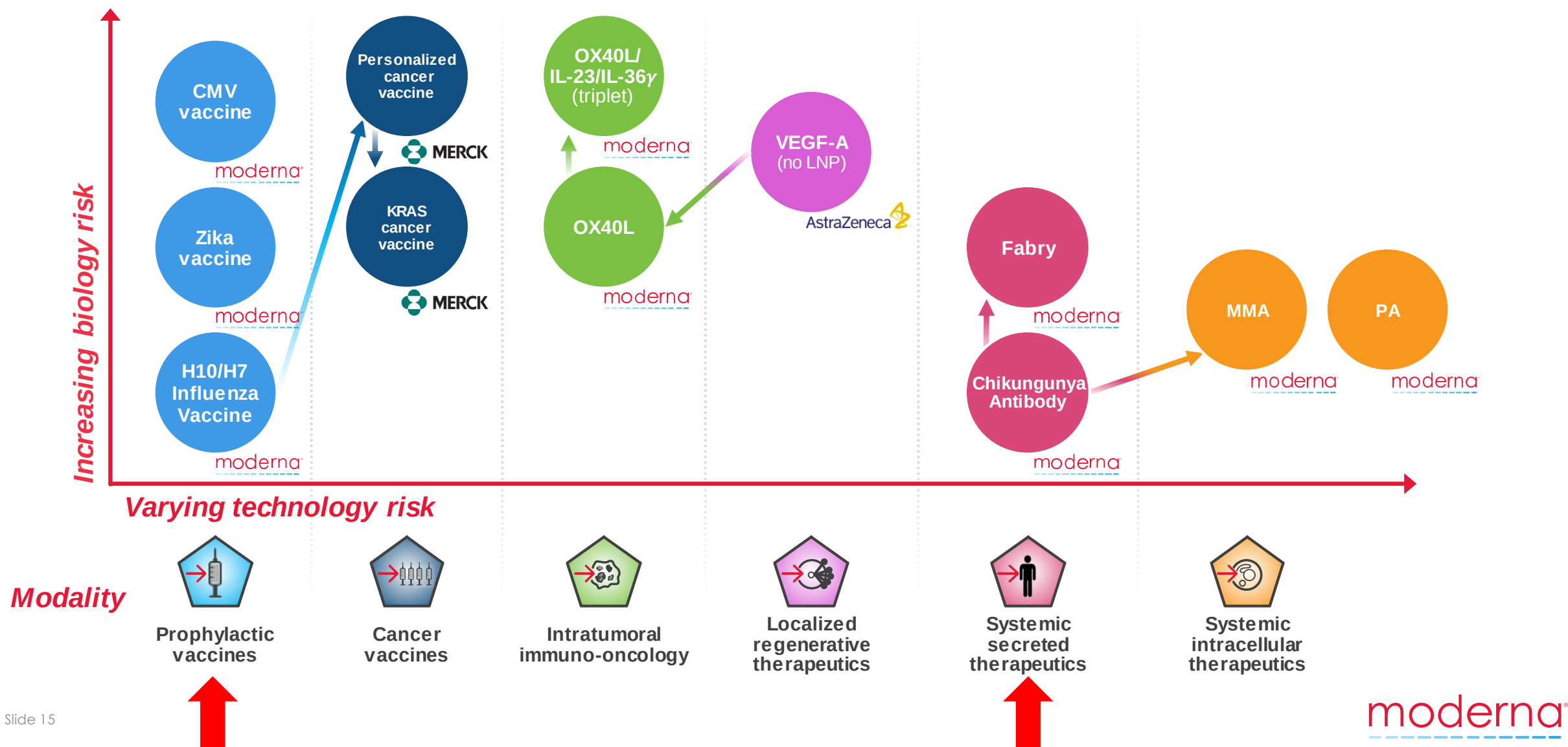
- Open IND
- FDA fast track status

mRNA as a potential new class of medicines

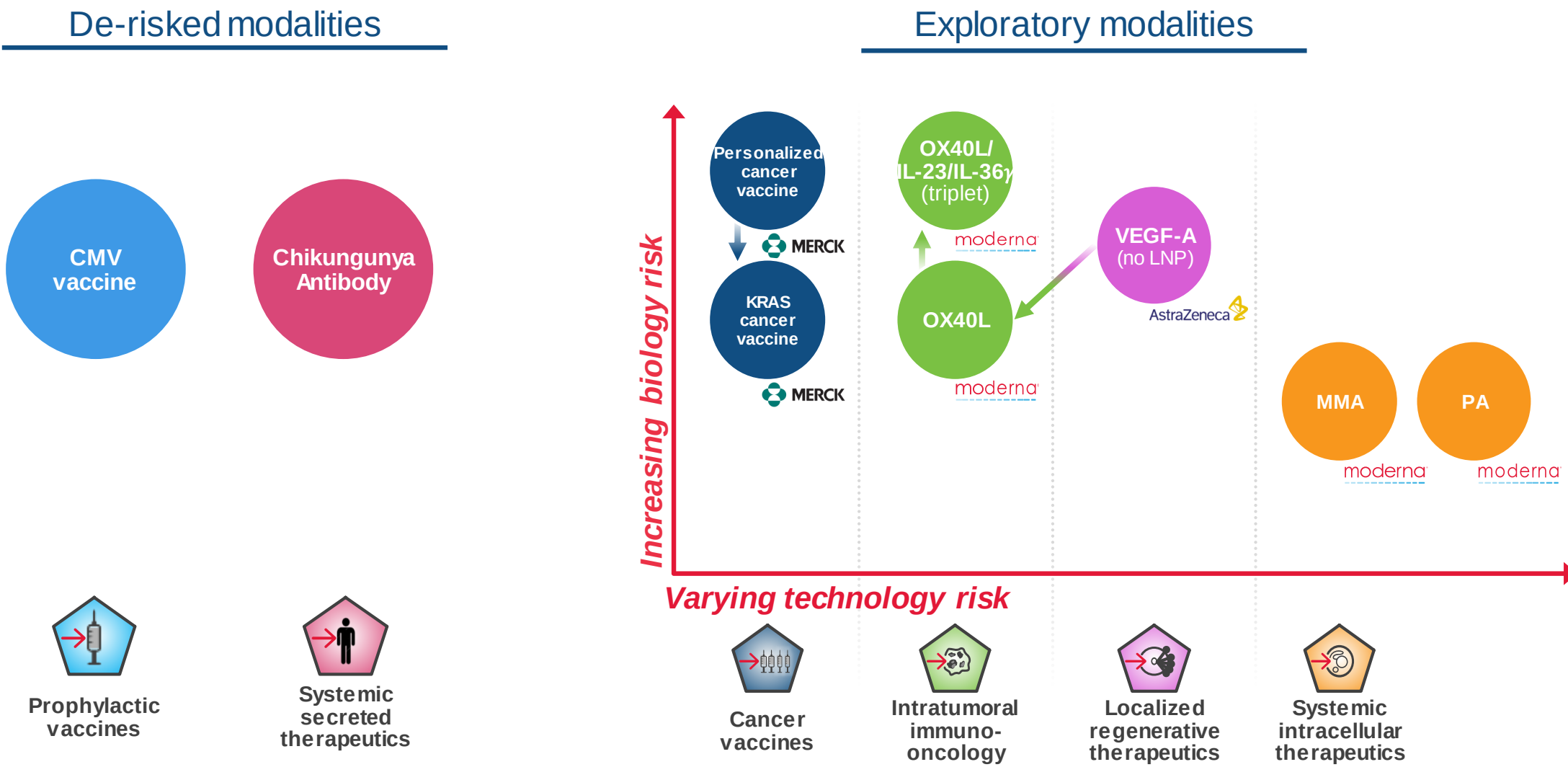


1. Large product opportunity
2. Higher probability of technical success
3. Accelerated research and development timelines
4. Greater capital efficiency over time vs. recombinant technology

Risk management is essential to building a new class of medicines

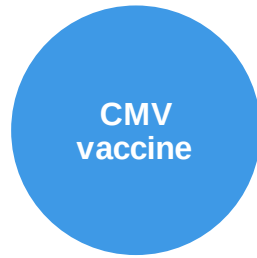


mRNA technology validated by clinical data in two modalities



mRNA technology validated by clinical data in two modalities

De-risked modalities



Prophylactic
vaccines



Systemic
secreted
therapeutics

mRNA advantages

1. Large product opportunity
2. High probability of technical success
3. Accelerated research and development timelines
4. Greater capital efficiency over time vs. recombinant technology

mRNA technology validated by clinical data in two modalities

Therapeutic areas

Infectious Diseases



Prophylactic vaccines



Systemic secreted therapeutics

mRNA advantages

1. Large product opportunity
2. High probability of technical success
3. Accelerated research and development timelines
4. Greater capital efficiency over time vs. recombinant technology

Moderna to expand development in its two de-risked modalities

Therapeutic areas

Infectious
Diseases

Autoimmune
Diseases



Prophylactic
vaccines



Systemic
secreted
therapeutics

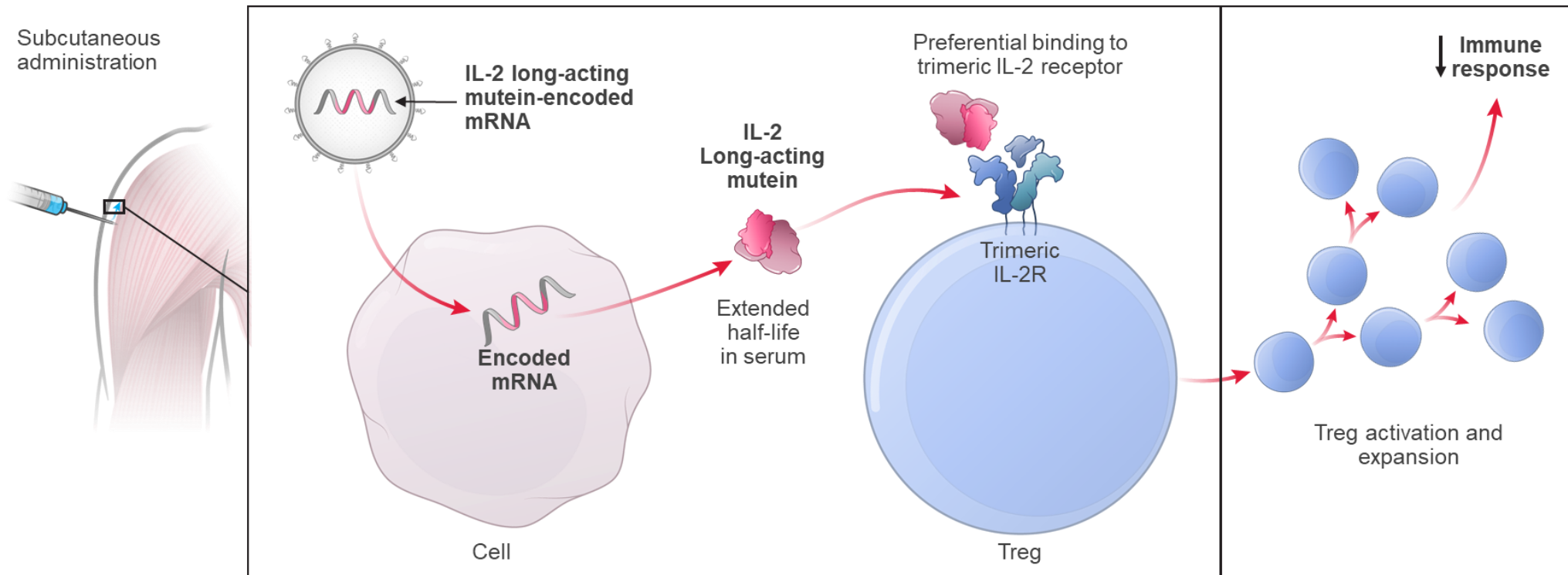
mRNA advantages

1. Large product opportunity
2. High probability of technical success
3. Accelerated research and development timelines
4. Greater capital efficiency over time vs. recombinant technology

IL-2 (mRNA-6231) – long acting mutein

mRNA-encoded IL-2 modified for the expansion of regulatory T cells

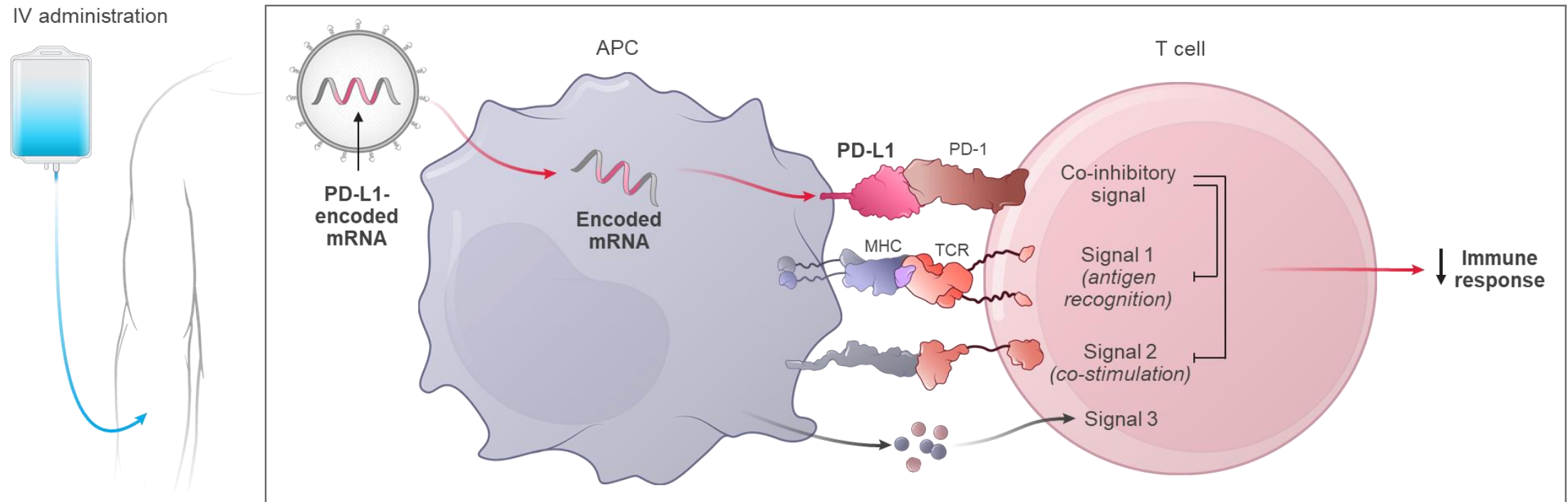
- Modified IL-2 is longer acting and more selective for the high affinity IL-2 receptor which is expressed mainly by regulatory T cells
- First intended subcutaneous administration of the LNP successfully used in a clinical trial for our mRNA-encoded antibody, mRNA-1944
- Recombinant IL-2 based therapeutics are being clinically evaluated for a wide range of autoimmune conditions



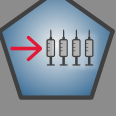
PD-L1 (mRNA-6981)

mRNA-encoded PD-L1 to send a tolerizing signal to immune cells

- We intend to influence myeloid cells to provide additional co-inhibitory signals in the context of immune synapses by augmenting endogenous expression of PD-L1
- We believe that this tolerizing signal to lymphocytes may limit autoreactivity in the context of ongoing autoimmune pathology without severe and global suppression of the immune system
- Employs intravenous administration of the same LNP as our mRNA-encoded antibody, mRNA-1944
- First indication intended to be autoimmune hepatitis, a compelling unmet need



Anticipated clinical next steps and catalysts

 Prophylactic vaccines	• CMV – Phase 2 immunogenicity data at 3-month IA, Phase 3 start • hMPV/PIV3 – Phase 1b seropositive age de-escalation immunogenicity data readout • RSV – Phase 1 safety and immunogenicity data readout • Zika – Phase 1 safety and immunogenicity data readout
 Systemic secreted & cell surface therapeutics	• Antibody against Chikungunya virus – Further development of 0.6 mg/kg dose • Fabry – IND filing • Relaxin – IND filing (AstraZeneca) • IL-2 – IND filing • PD-L1 – IND filing
 Cancer vaccines	• PCV – Phase 2 clinical data readout • KRAS – Phase 1 data readout
 Intratumoral immuno-oncology	• OX40L – Initiation of dosing of phase 2 combination cohort • OX40L/IL-23/IL-36γ (Triplet) – Completion of dose escalation monotherapy and combination cohorts • IL-12 – Phase 1 data readout
 Localized regenerative therapeutics	• VEGF – Phase 2a data readout
 Systemic intracellular therapeutics	• MMA – Safety and proof of concept biomarker phase 1/2 data readout • PA – Phase 1/2 study start • PKU – IND filing • GSD1a – IND filing

Ability to invest ~\$1.45 billion to create value

Cash and investments¹ at December 31, 2019 (unaudited)

At December 31, 2019, we had \$1.26 billion of cash, cash equivalents and investments

Grant funding status as of December 31, 2019 (unaudited)

Total additional funding available from grants is ~\$184 million (including amounts not committed)²

We expect 2020 net cash used in operating activities and purchases of property and equipment to total \$490 million to \$510 million

¹ "Cash and investments" denotes cash, cash equivalents and investments

² Funding from Biomedical Advanced Research and Development Authority (BARDA), Defense Advanced Research Projects Agency (DARPA), and the Bill and Melinda Gates Foundation (BMGF). Additional funding is subject to agreement on scope of additional projects.

Moderna in January 2020

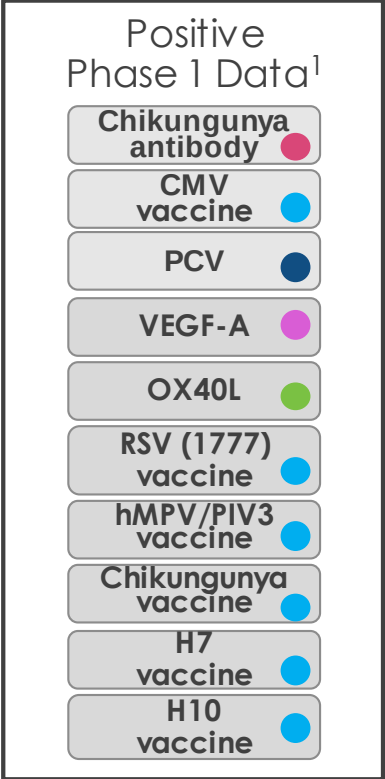
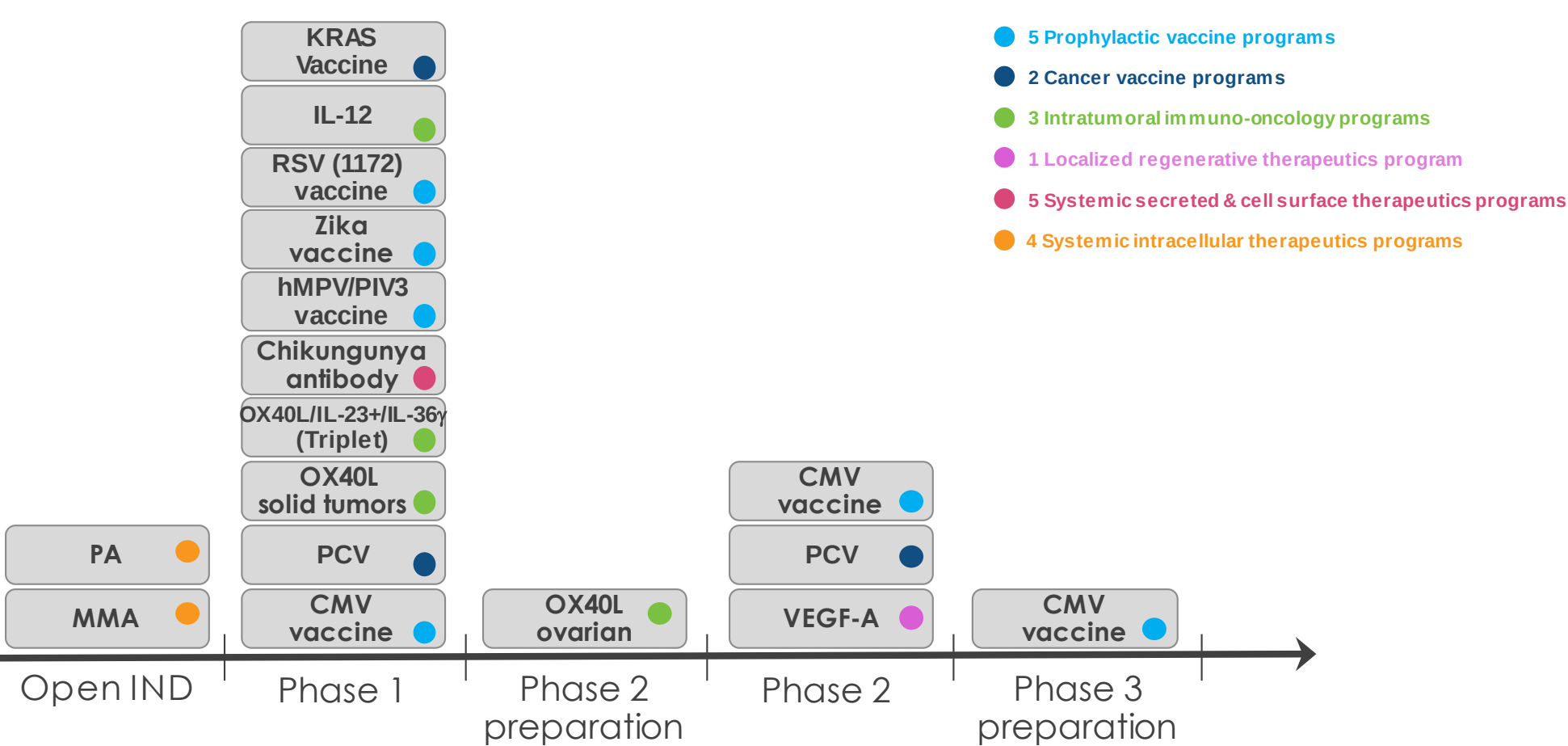
Pipeline	1 Preparing for Ph 3	4 In or preparing for Ph 2	10 Ph 1 trials ongoing	10 Positive Ph 1 readouts: 6 vaccines, PCV, OX40L, VEGF, anti-Chikungunya antibody		
Programs in Development	4 Vaccines for major unmet needs • CMV in Ph 2, Ph 3 preparation • hMPV/PIV3 – started phase 1b age de-escalation study • RSV and Zika in Ph 1		5 Immuno-Oncology • PCV in Ph 2 • OX40L preparing for Ph 2 cohort • Triplet, IL-12, KRAS in Ph 1	5 Rare disease • MMA – Ph 1 actively recruiting • PA – Open IND • PKU, Fabry & GSD1a in preclinical	2 Autoimmune disease • IL-2 and PD-L1 – in preclinical	
Foundations	>1,500 Healthy volunteers and patients enrolled		>800 employees	A fully-integrated 200,000 sq. ft. GMP site operational in Norwood, MA	Leading biopharma partners  MERCK  AstraZeneca  VERTEX	\$1.26bn of cash and investments as of Dec. 31, 2019 (unaudited)

Moderna priorities for 2020

1 *Execute on the development pipeline*

- Execution of CMV phase 2 and preparation for CMV phase 3
- Advance the 20 programs in development

Moderna's development pipeline (as of January 13th, 2020)



¹ Data in some cases are interim; positive data means the data warrant continued advancement within a trial or for further development.

Programs in preclinical development

GSD1a PKU Fabry Relaxin PD-L1 IL-2

Moderna priorities for 2020

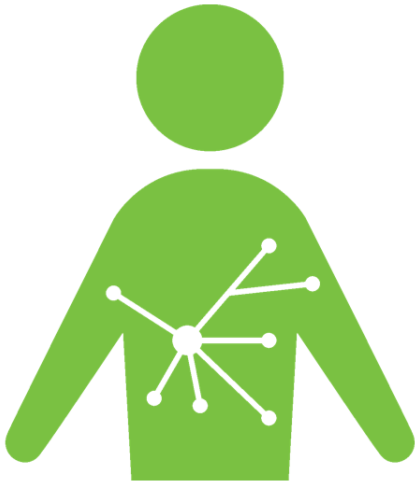
1 *Execute on the development pipeline*

- Execution of CMV phase 2 and preparation for CMV phase 3
- Advance the 20 programs in development

2 *New development candidates in the two clinically de-risked modalities*

- Prophylactic vaccines
- Systemic secreted and cell surface therapeutics

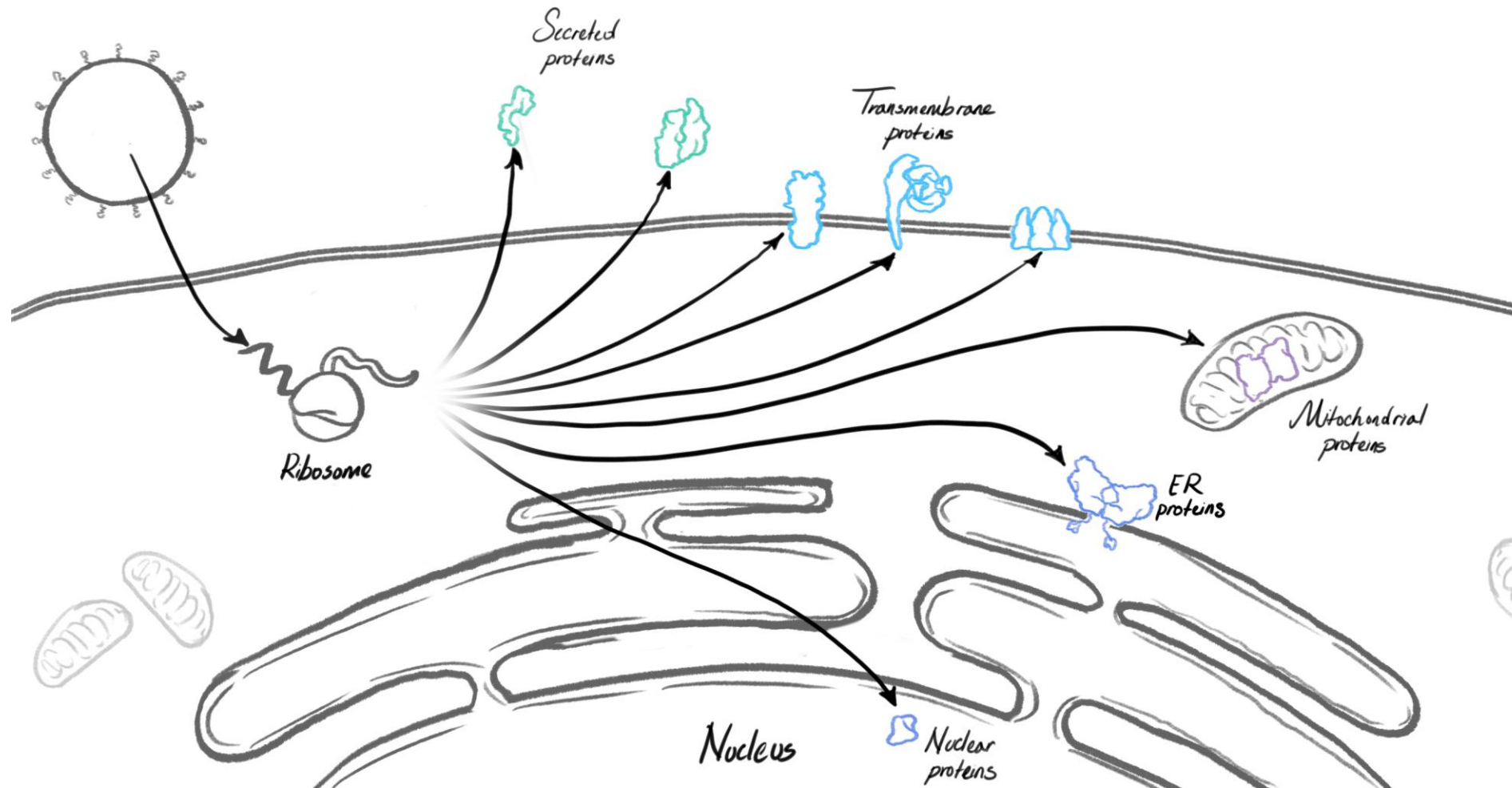
3 *New development candidates in new modalities*



Our mission

To deliver on the promise of mRNA science to create a new generation of transformative medicines for patients.

mRNA as a potential new class of medicines



1. Large product opportunity
2. Higher probability of technical success
3. Accelerated research and development timelines
4. Greater capital efficiency over time vs. recombinant technology