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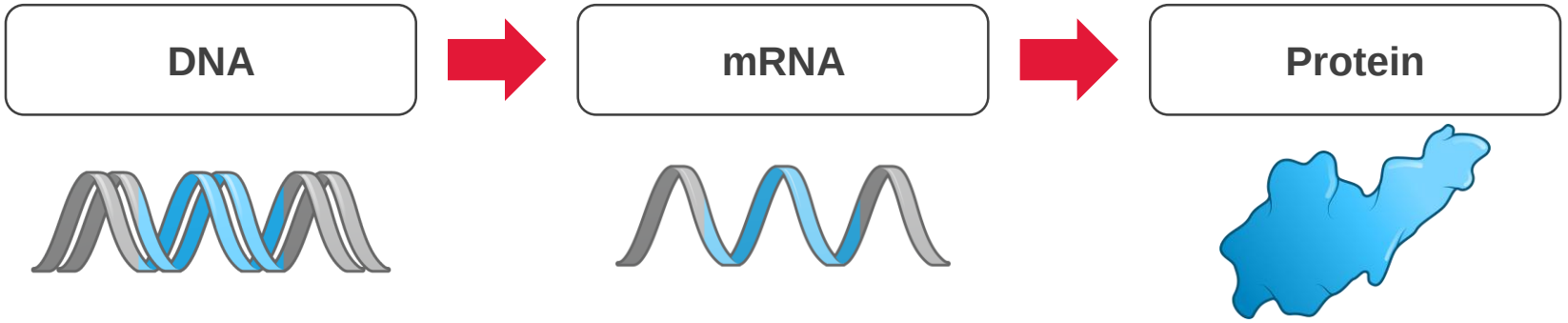

Corporate Update and 2018 Financial Review

March 6th, 2019

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: mRNA as a potential new class of medicines; the scope of the mRNA opportunity; Moderna's 2019-2020 priorities, including executing on the development pipeline and developing new development candidates and modalities; anticipated next steps for each of Moderna's modalities and development candidates; risk management strategies; key questions for Moderna's technology in patients; and expectations regarding cash, cash equivalents, and investments at December 31, 2019. In some cases, forward-looking statements can be identified by terminology such as "will," "may," "should," "expects," "intends," "plans," "aims," "anticipates," "beliefs," "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 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 potential new 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 potential new class of medicines; and those described in Moderna's Prospectus filed with the U.S. Securities and Exchange Commission (SEC) on December 7, 2018 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.

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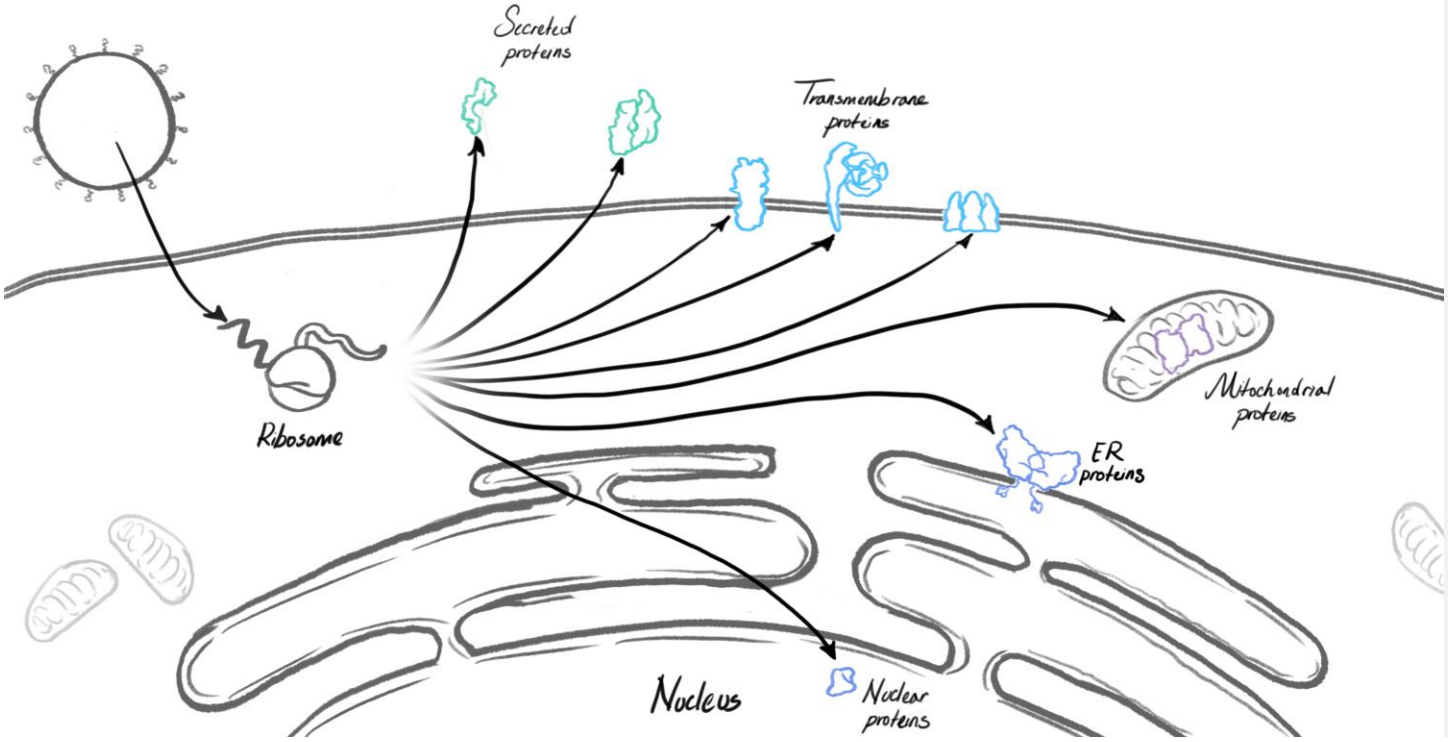
mRNA as a potential new class of medicines



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

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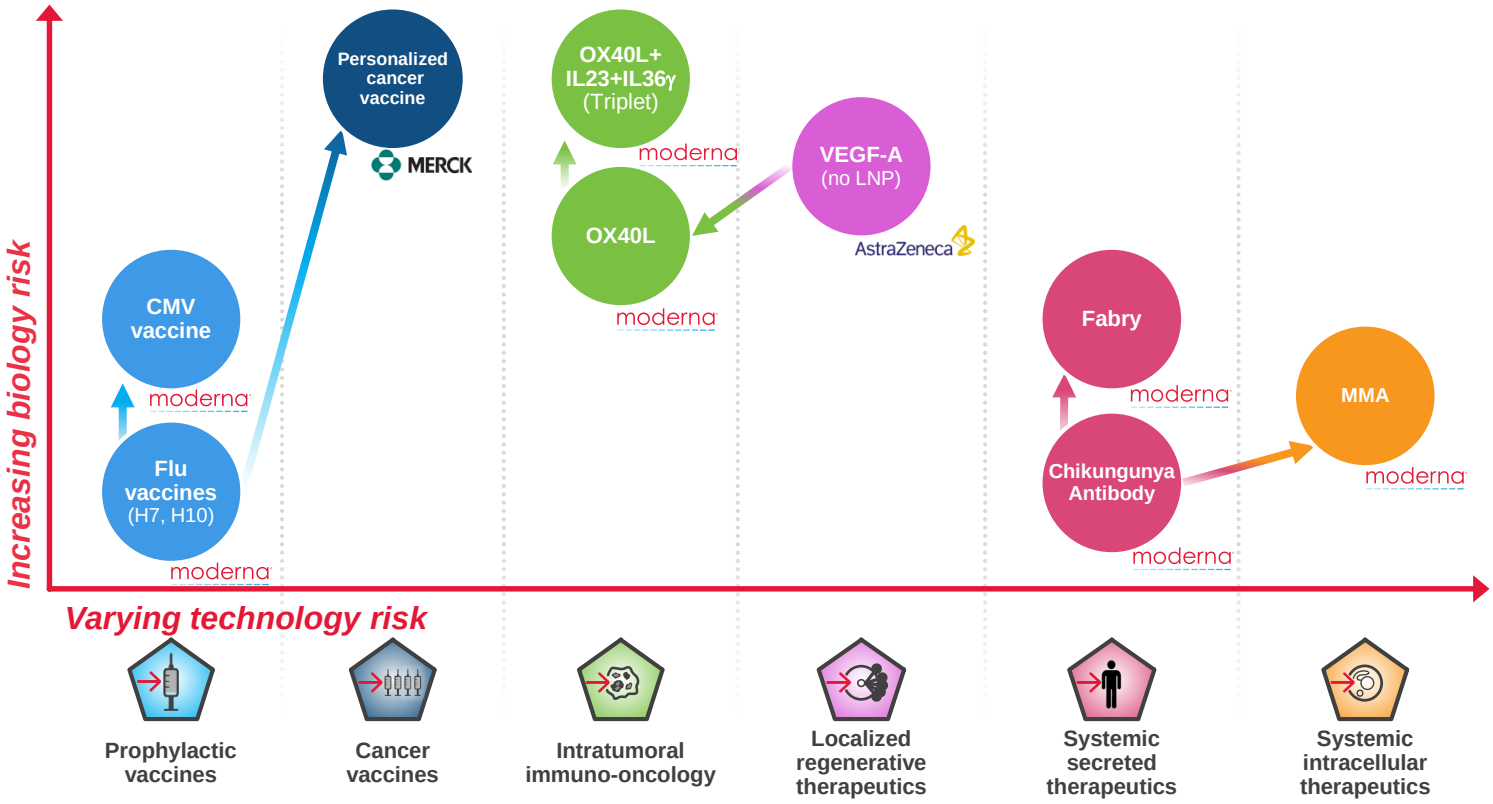
Risk management is essential to building a new class of medicines



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Moderna Priorities for 2019-2020

We focus on our portfolio of potential mRNA medicines, not "lead assets"

1 **Execute on the development pipeline**

- 20 programs currently in development
- Focus on demonstrating human proof of concept

2 **New development candidates in existing modalities**

3 **New development candidates in new modalities**

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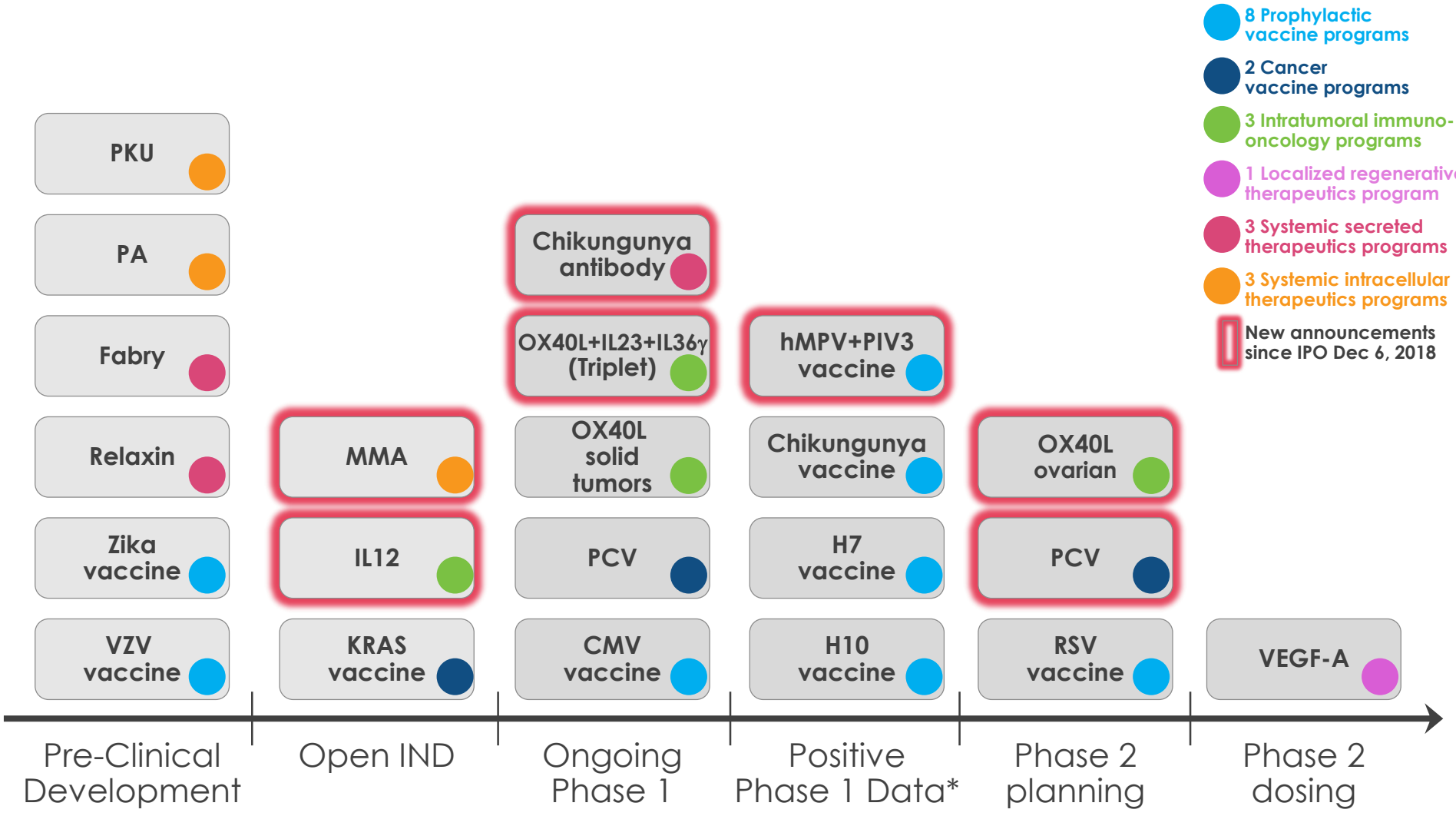
Moderna's development pipeline



*Data in some cases are interim

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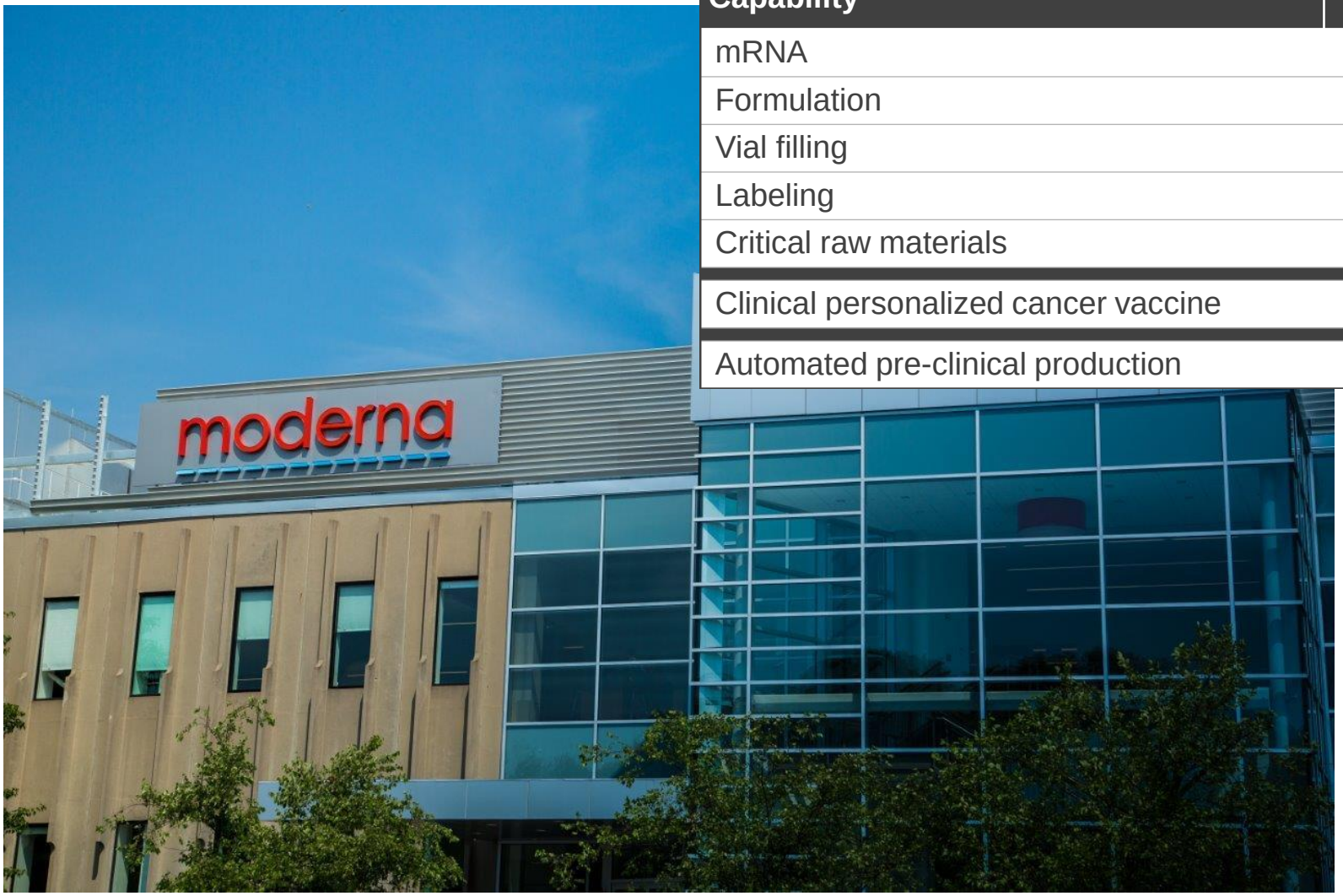
Norwood, MA site was built to enable Moderna's scale-up



Capability	Operational
mRNA	✓
Formulation	✓
Vial filling	✓
Labeling	✓
Critical raw materials	*In progress*
Clinical personalized cancer vaccine	✓
Automated pre-clinical production	✓

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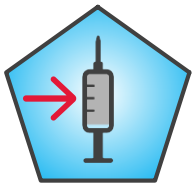
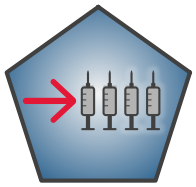
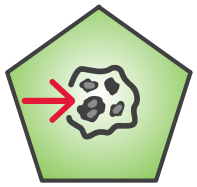
Progress by modality



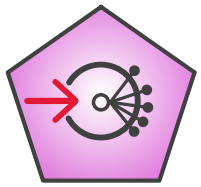
Prophylactic vaccines



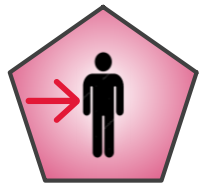
Cancer vaccines



Intratumoral immuno-oncology



Localized regenerative therapeutics



Systemic secreted therapeutics

Systemic intracellular therapeutics

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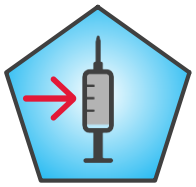
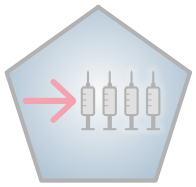
Progress by modality

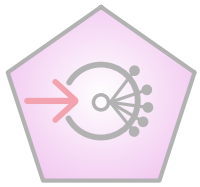


Prophylactic vaccines



Cancer vaccines

Intratumoral immuno-oncology



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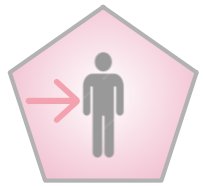
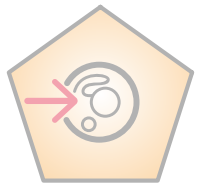


Systemic secreted therapeutics



Systemic intracellular therapeutics

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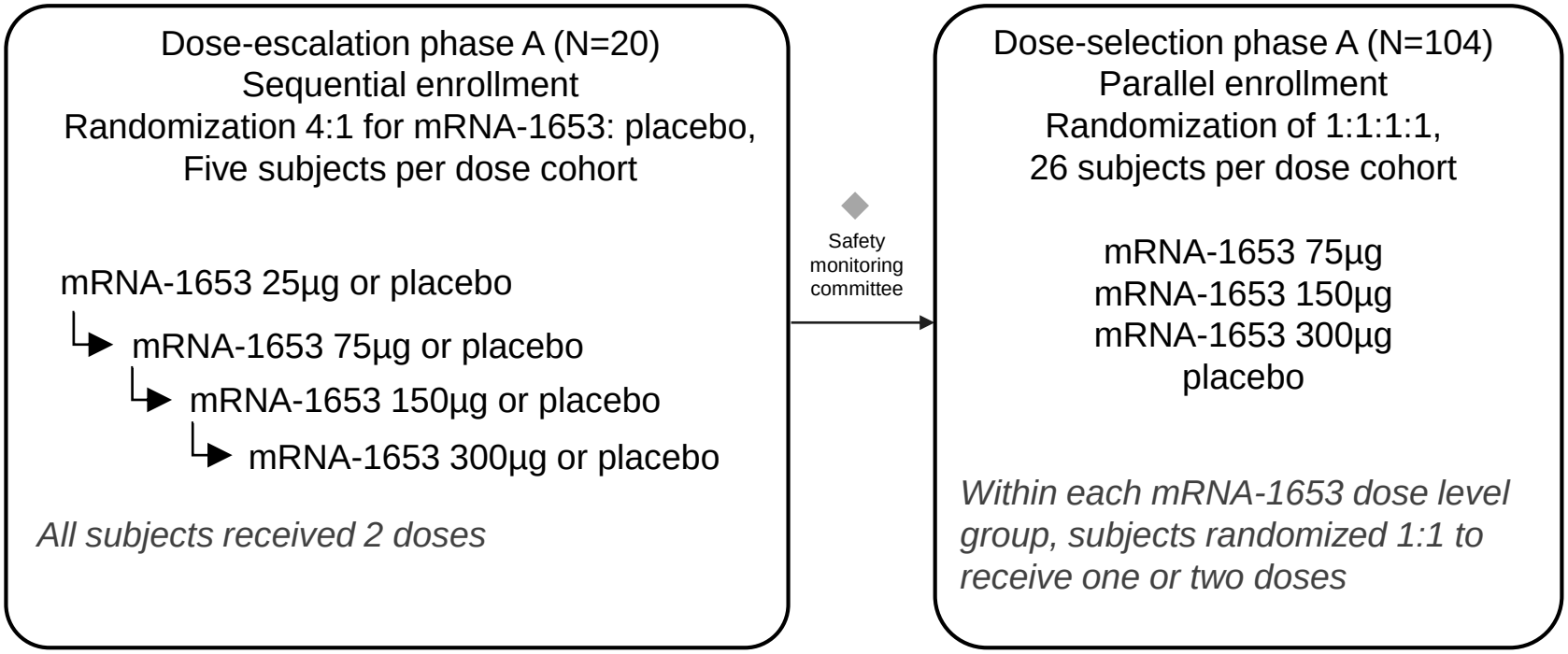
hMPV+PIV3 vaccine (mRNA-1653)

Phase 1 design – healthy adults

Key Objectives

- Evaluate safety and immunogenicity through 12 months after the second vaccination
- Select optimal dose and vaccination schedule for further clinical development

Dosing schedule: Day 1 and Month 1



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hMPV+PIV3 vaccine (mRNA-1653)

Phase 1 in healthy adults

Interim results, through study Month 2 (1 month after second vaccination)

Safety and tolerability

- mRNA-1653 was found to be generally well tolerated
- No serious adverse events (SAEs), adverse events of special interest, or adverse events leading to withdrawal were reported
- Injection site pain was most commonly reported solicited adverse event and grade 3 adverse event

Immunogenicity

- Single vaccination boosted serum neutralization titers against hMPV and PIV3 at all dose levels tested
- Neutralizing antibodies against hMPV and PIV3 present at baseline in all subjects, consistent with prior exposure to both viruses
- 1 month after a single vaccination, hMPV and PIV3 neutralization titers ~6x and ~3x baseline, respectively
- Second vaccination did not further boost antibody titers, suggesting a single vaccination was sufficient to achieve a plateau in neutralizing antibodies in this pre-exposed population

Full data to be presented at future medical meeting

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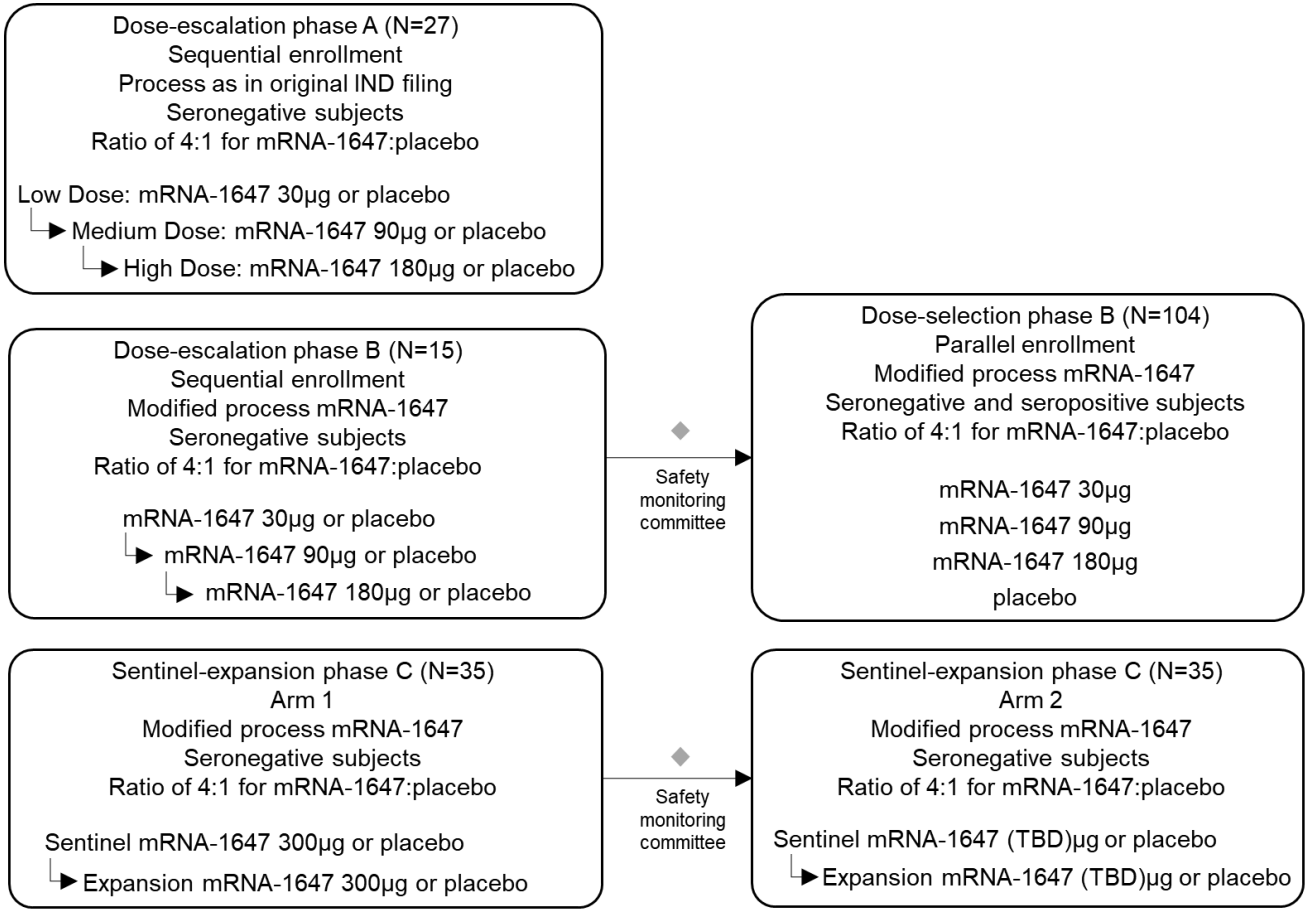
Congenital CMV vaccine (mRNA-1647)

Ongoing Phase 1 design – initial 3 dose levels enrolled

Key Objective: Evaluate safety, reactogenicity, and immunogenicity of different dose levels of mRNA-1647

- Based on blinded safety and tolerability profile observed, we plan to test two higher dose levels in sentinel-expansion phase



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Prophylactic vaccines

Five positive Phase 1 readouts, Merck preparing for RSV vaccine Phase 2

Clinical data

- **Safety:** ~ 950 healthy volunteers enrolled in 7 Phase 1 vaccine trials, at dose levels up to 300µg. Emerging safety and tolerability profile consistent with that of marketed adjuvanted vaccines.
- **Activity:**
  - **hMPV+PIV3** (mRNA-1653) – vaccination boosted serum neutralization titers against hMPV and PIV3 at all dose levels tested
  - **RSV** (mRNA-1777) – Merck initiating planning for Phase 2a
  - **Chikungunya** (mRNA-1388) – 100% seroresponse for subjects at the 100µg dose level
  - **H7 influenza** (mRNA-1851) – 96% of subjects at 25µg achieved HAI titer > 1:40
  - **H10 influenza** (mRNA-1440) – 100% of subjects at 100µg achieved HAI titer > 1:40

Anticipated next steps

- **CMV** (mRNA-1647) – Phase 1 safety and immunogenicity data; Phase 2 start
- **hMPV+PIV3** (mRNA-1653) – Phase 1b age de-escalation study start
- **RSV** (mRNA-1777) – Phase 2a start
- **Zika** (mRNA-1893) – IND filing

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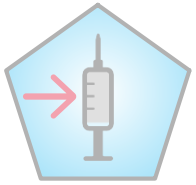
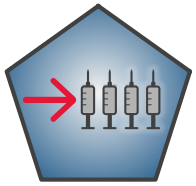
Progress by modality

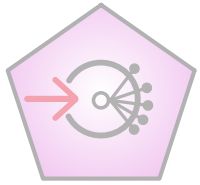


Prophylactic vaccines

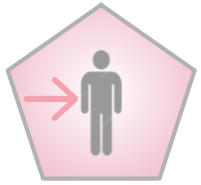


Cancer vaccines

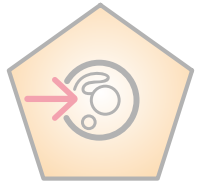
Intratumoral immuno-oncology



Localized regenerative therapeutics



Systemic secreted therapeutics



Systemic intracellular therapeutics

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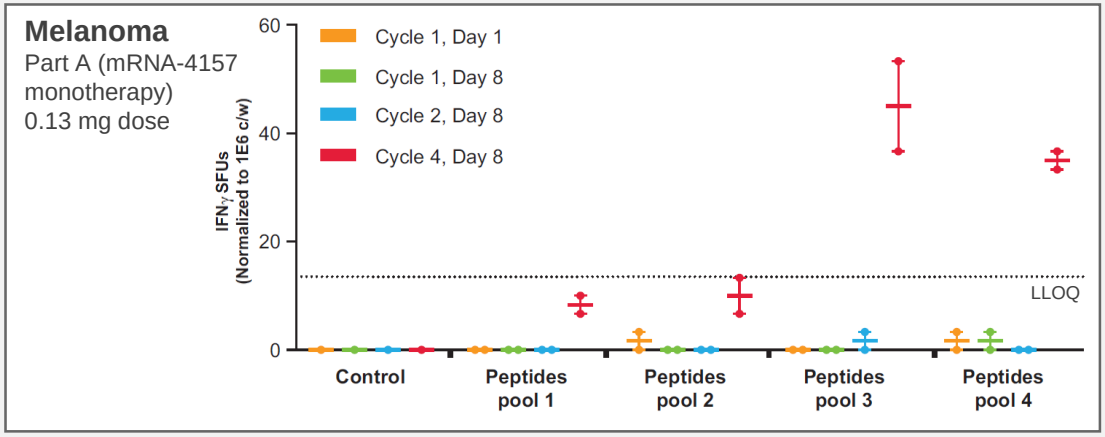
Cancer vaccines

Randomized Phase 2 protocol filed

Clinical data

- **Safety: PCV** (mRNA-4157) – >30 pts dosed, enrolling expansion cohorts at 1.0 mg, no dose limiting toxicities to date[1]
- **Activity: PCV** (mRNA-4157) – early data from one patient in 0.13 mg cohort show antigen-specific T cell responses



Anticipated next steps

- **PCV** (mRNA-4157) – Phase 1 clinical activity; start of randomized Phase 2
- **KRAS vaccine** (mRNA-5671) – Phase 1 start by Merck; Phase 1 T cell immunogenicity

[1] As of February 15, 2019

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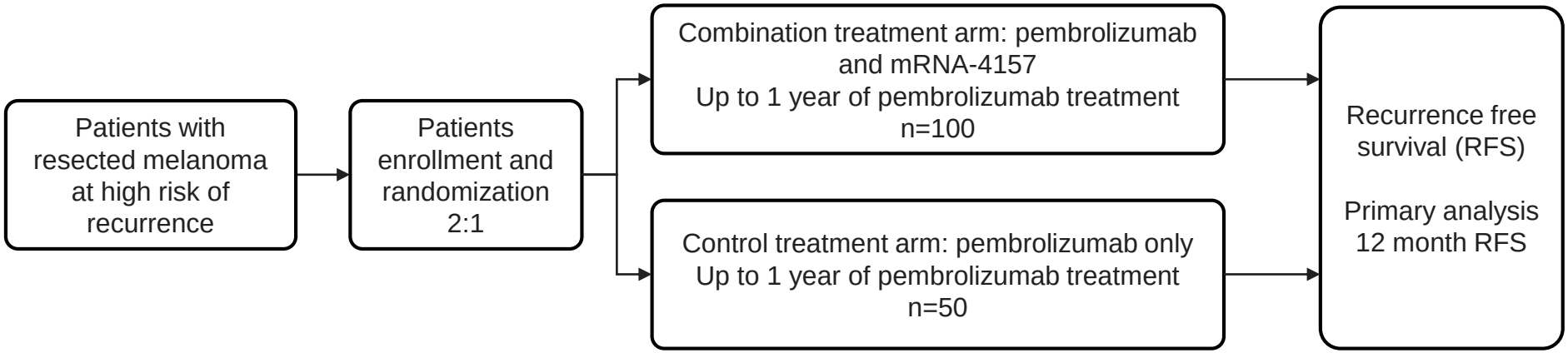
PCV (mRNA-4157)

Protocol package filed with FDA for randomized Phase 2 study

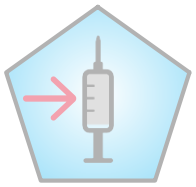
- Randomized Phase 2, PCV + pembrolizumab vs. pembrolizumab alone in resected melanoma at high risk of recurrence

Key Objectives

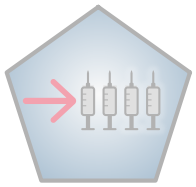
- Assess whether postoperative adjuvant therapy with mRNA-4157 and pembrolizumab improves recurrence free survival compared to pembrolizumab only in patients with complete resection of cutaneous melanoma at high risk of recurrence
- Primary endpoint: recurrence free survival at 12 months



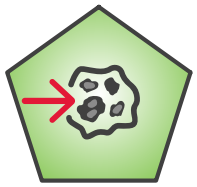
Progress by modality



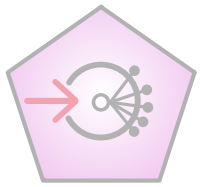
Prophylactic vaccines



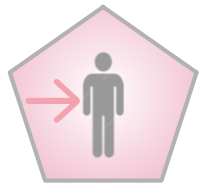
Cancer vaccines



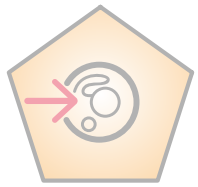
Intratumoral immuno-oncology



Localized regenerative therapeutics



Systemic secreted therapeutics



Systemic intracellular therapeutics

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Intratumoral immuno-oncology

mRNA-2752 Phase 1 ongoing; amendment filed for OX40L Phase 2 cohort

Clinical & regulatory update

- **OX40L** (mRNA-2416) – In dose confirmation stage, dosing at up to 8 mg[1]
  - Amendment filed for Phase 2 cohort in advanced ovarian carcinoma as part of current trial based on observations of injected lesion regression (not meeting RECIST response criteria) in two patients with advanced ovarian carcinoma in Phase 1
- **OX40L+IL23+IL36γ (Triplet)** (mRNA-2752) – Currently dose escalating, enrolling second dose cohort (0.5 mg)[2]
- **IL12** (MEDI1191) – AstraZeneca will lead the early clinical development. IND open for Phase 1 trial.

Anticipated next steps

- **OX40L** (mRNA-2416) – Initiate dosing of Phase 2 advanced ovarian carcinoma cohort
- **OX40L+IL23+IL36γ (Triplet)** (mRNA-2752) – complete dose escalation and initiate dosing of disease-specific cohorts
- **IL12** (MEDI1191) – Phase 1 start by AstraZeneca

[1] As of February 15, 2019
[2] As of February 28, 2019

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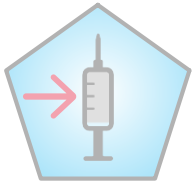
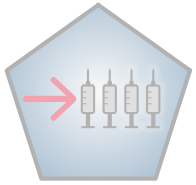
Progress by modality



Prophylactic vaccines



Cancer vaccines

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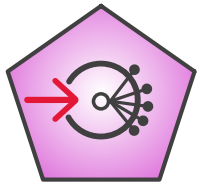
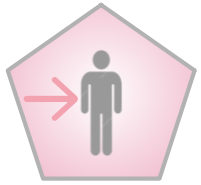
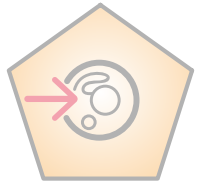


Localized regenerative therapeutics



Systemic secreted therapeutics



Systemic intracellular therapeutics

- Randomized Phase 2a ongoing – direct cardiac injection in patients undergoing CABG
- Phase 1 data recently published

nature COMMUNICATIONS

Intradermal delivery of modified mRNA encoding VEGF-A in patients with type 2 diabetes

Li-Ming Gan[1,2,3], Maria Lagerström-Fermér[1], Leif G. Carlsson[4], Cecilia Arfvidsson[1], Ann-Charlotte Egnell[1], Anna Rudvik[1], Magnus Kjaer[1], Anna Collén[4], James D. Thompson[5], John Joyal[5], Ligia Chialda[6], Thomas Koernicke[6], Rainard Fuhr[6], Kenneth R. Chien[7,8] & Regina Fritsche-Danielson[4]

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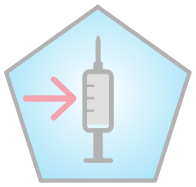
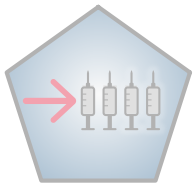
Progress by modality

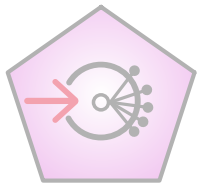


Prophylactic vaccines

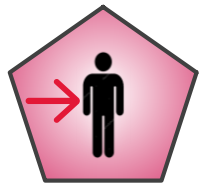


Cancer vaccines

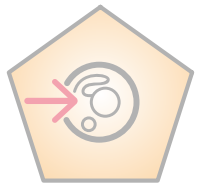
Intratumoral immuno-oncology



Localized regenerative therapeutics



Systemic secreted therapeutics



Systemic intracellular therapeutics

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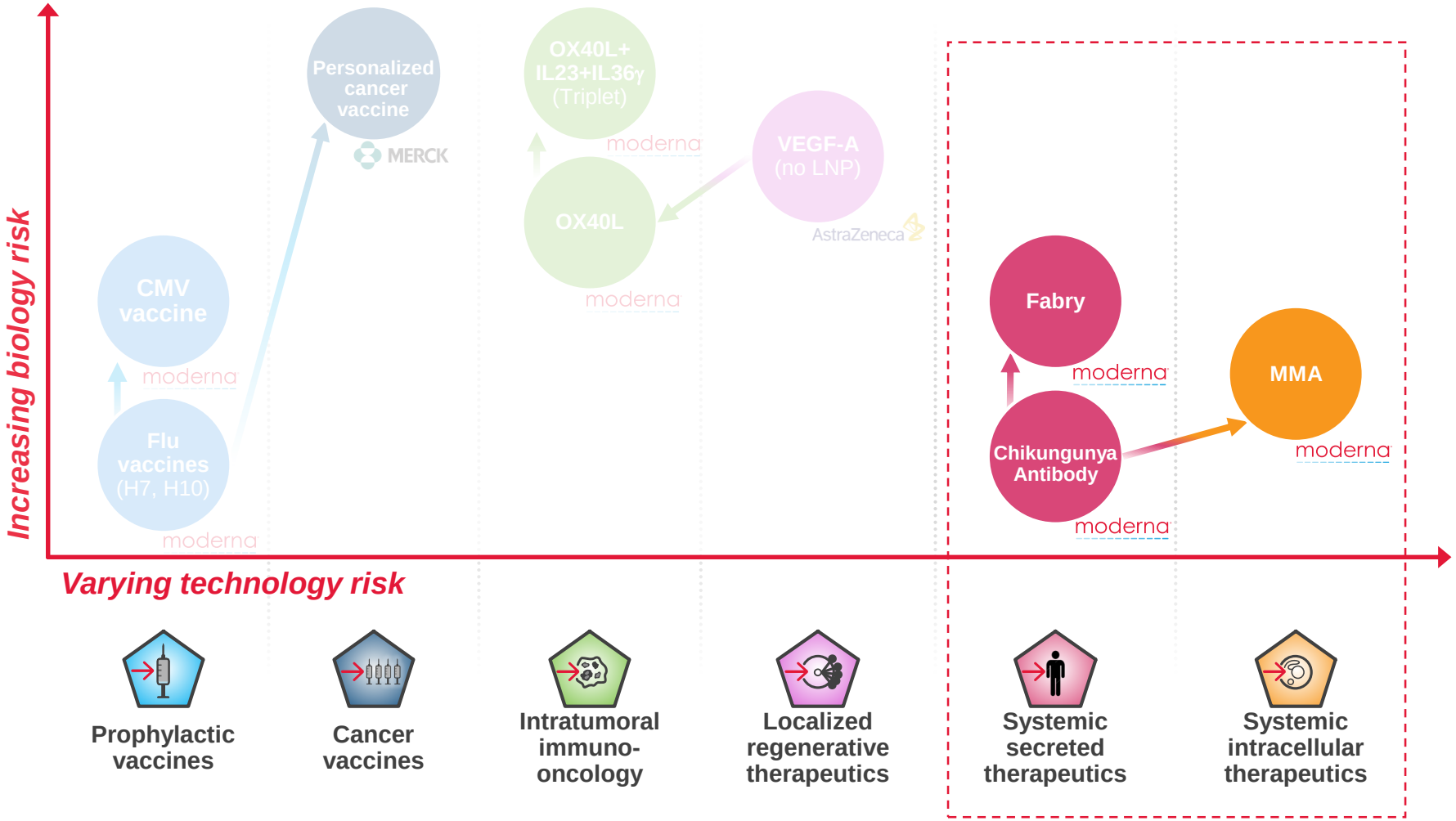
mRNA encoding Chikungunya antibody as platform proof point for systemic therapeutics modalities



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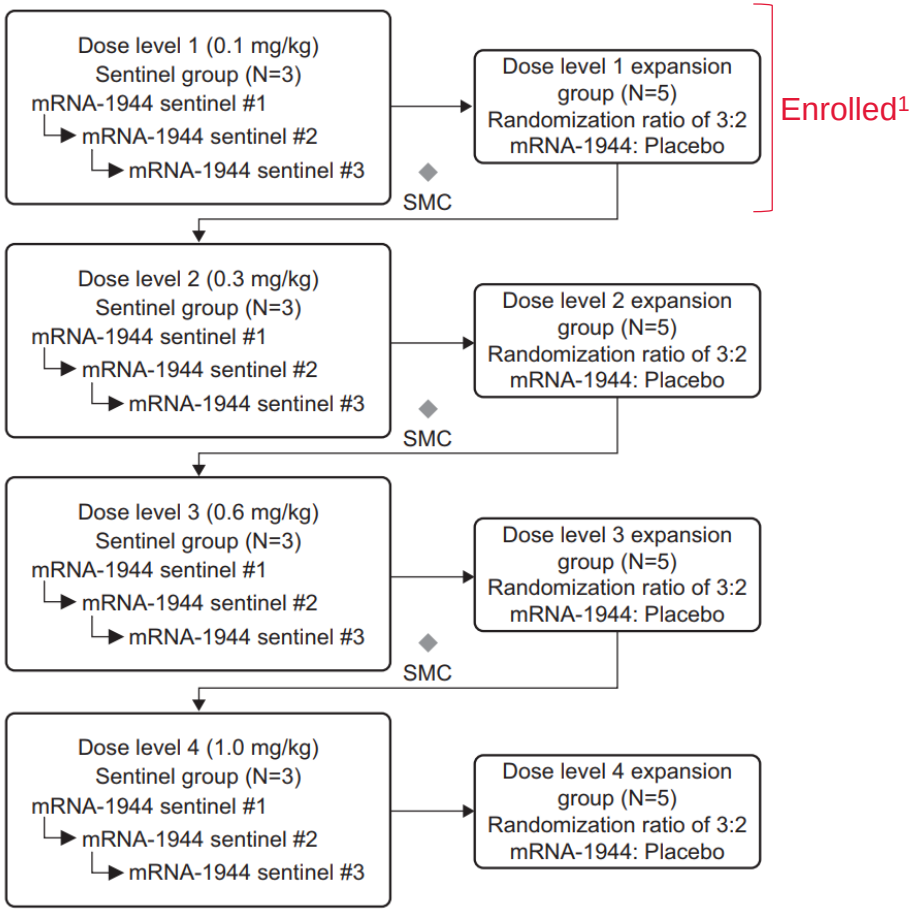
Antibody against Chikungunya virus (mRNA-1944)

First dose level cohort of healthy volunteers dosed in Phase 1 trial

- Randomized, placebo-controlled, single ascending dose study in healthy adults

Key Objectives

- Evaluate safety and tolerability of escalating doses of mRNA-1944 administered via intravenous infusion
- Determine pharmacokinetics of up to four dose levels (0.1, 0.3, 0.6, 1.0 mg/kg)
- Determine if the antibodies produced are sufficiently active to neutralize viral infection in assays
- Determine the pharmacodynamics of anti-Chikungunya virus IgG levels



[1] As of February 20, 2019

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Systemic secreted therapeutics

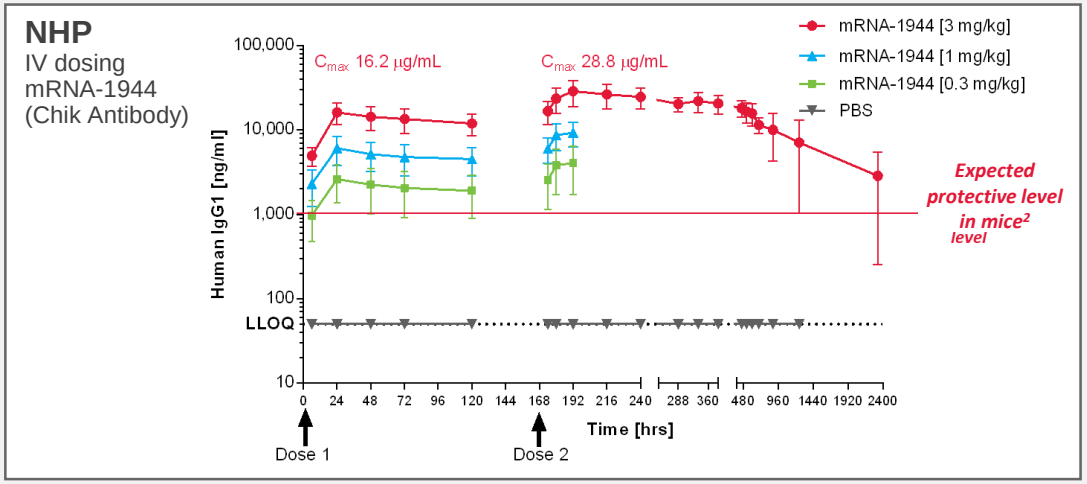
First in human for first systemic therapeutic

Clinical & regulatory update

- **Chikungunya Ab** (mRNA-1944) – Enrolled first dose level (0.1 mg/kg, 8 subjects), no DLTs to date[1]

Representative pre-clinical data

- **Safety: Chikungunya Ab** (mRNA-1944) – Top dose tested in NHPs was NOAEL (no observed adverse event level)
- **Activity:** Dose-dependent expression of mRNA-1944 in NHPs



- **Fabry** (mRNA-3630) – Sustained reduction of substrate beyond 8 weeks in key tissues after single dose in mice
- **Relaxin** (AZD7970) – Showed protein expression over 10 days in NHP

Anticipated next steps

- **Chikungunya Ab** (mRNA-1944) – Phase 1 safety and serum antibody levels
- **Fabry** (mRNA-3630) – IND filing
- **Relaxin** (AZD7970) – IND filing (AstraZeneca)

[1] As of February 20, 2019

[2] Extrapolated from Chik Vaccine mice studies; Source: Yoon I-K, Alera MT, Lago CV, Tac-An IA, Villa D, Fernandez S, et al. (2015) High Rate of Subclinical Chikungunya Virus Infection and Association of Neutralizing Antibody with Protection in a Prospective Cohort in The Philippines. PLoS Negl Trop Dis 9(5): e0003764. doi:10.1371/journal.pntd.0003764

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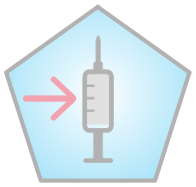
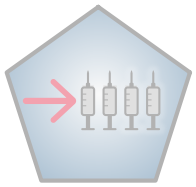
Progress by modality

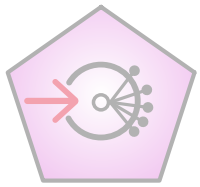


Prophylactic vaccines

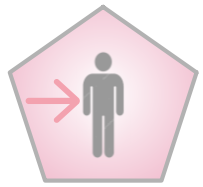


Cancer vaccines

Intratumoral immuno-oncology



Localized regenerative therapeutics



Systemic secreted therapeutics

Systemic intracellular therapeutics

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Systemic intracellular therapeutics

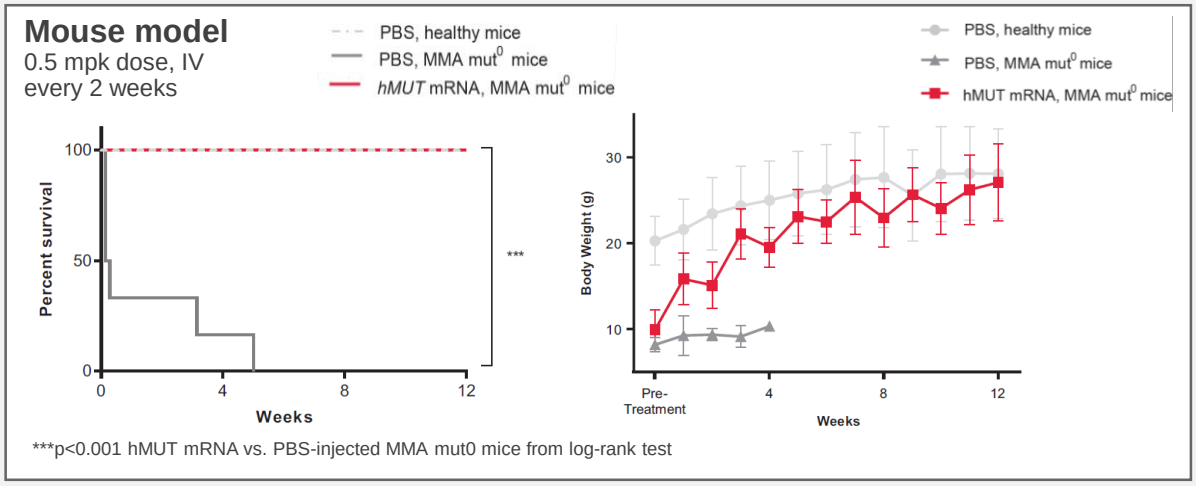
Rare disease programs advancing toward clinic; MMA IND open

Clinical & regulatory update

- **MMA** (mRNA-3704) – IND safe to proceed, Fast Track Designation
- **MMA and PA Natural History Study** (MaP): 32 patients enrolled (20 MMA, 12 PA)[1]

Representative pre-clinical data

- **Safety: MMA** (mRNA-3704) – Top dose tested in NHPs was NOAEL (no observed adverse event level)
- **Activity: MMA** – 100% rescue in severe MMA mouse model



- **PA** (mRNA-3927) – Reduction in plasma biomarkers and amelioration of cardiomegaly
- **PKU** (mRNA-3283) – Reduction in PHE with repeat dosing

Anticipated next steps

- **MMA** (mRNA-3704) – safety and proof of concept biomarker Phase 1/2 data
- **PA** (mRNA-3927) – IND filing
- **PKU** (mRNA-3283) – IND filing

[1] As of February 27, 2019

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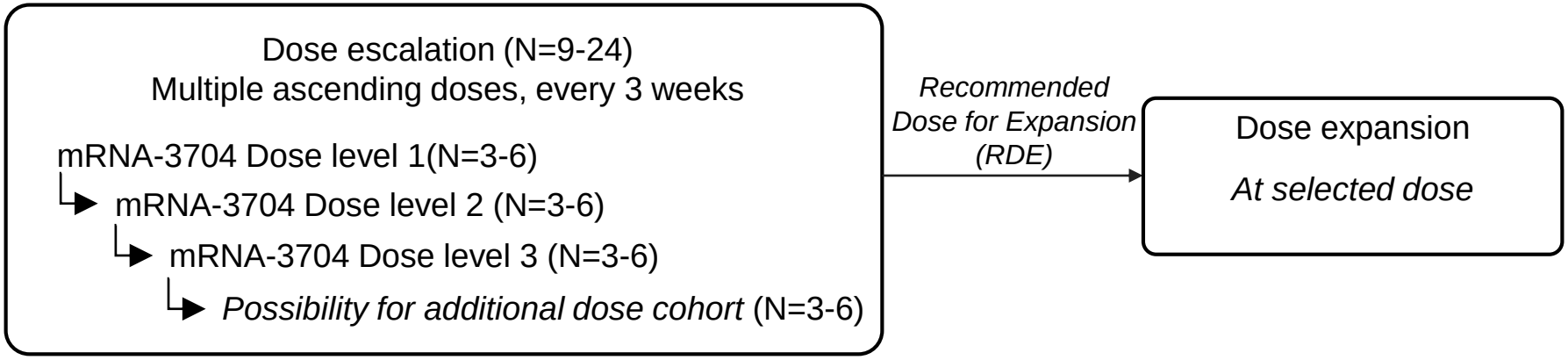
Methylmalonic acidemia (MMA) (mRNA-3704)

Phase 1/2 design – IND safe to proceed

Study Objectives

- Evaluate the safety, pharmacodynamics (as assessed by changes in plasma methylmalonic acid), and pharmacokinetic profile of mRNA-3704 in patients with MMA
- Eligibility criteria: patients with isolated MMA due to MUT deficiency between 1 to 18 years of age with elevated plasma methylmalonic acid concentrations
- First dose level will enroll adolescents aged 12-18; once safety and tolerability determined we intend to enroll patients who are between the ages of 1 and 18 years old.



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Moderna's development pipeline

New announcements since IPO Dec 6, 2018

Modality	Program #	Program *Indication*	Preclinical development	Phase 1	Phase 2	Phase 3 and commercial	Moderna rights
Prophylactic vaccines	**mRNA-1777**	Respiratory syncytial virus (RSV) vaccine					Merck to pay milestones and royalties
	mRNA-1647	Cytomegalovirus (CMV) vaccine			***Phase 1 first 3 dose levels enrolled***		Worldwide
	mRNA-1653	Human metapneumovirus and parainfluenza virus 3 (hMPV+PIV3) vaccine	Phase 1b (pediatrics)	Phase 1 (adults)	***Phase 1 (adults) positive interim data***		Worldwide
	mRNA-1278	Varicella zoster virus (VZV) vaccine					Merck to pay milestones and royalties
	mRNA-1440	Influenza H10N8 vaccine					Worldwide *Advancing subject to funding*
	mRNA-1851	Influenza H7N9 vaccine					Worldwide *Advancing subject to funding*
	mRNA-1893	Zika vaccine	***Progressing toward IND filing; no further development of mRNA-1325***				Worldwide *BARDA funded*
	mRNA-1388	Chikungunya vaccine					Worldwide *Advancing subject to funding*
Cancer vaccines	**mRNA-4157**	Personalized cancer vaccine (PCV)			***Phase 2 protocol filed***		50-50 global profit sharing with Merck
	NCI-4650	Personalized cancer vaccine (PCV)					
	mRNA-5671	KRAS vaccine					50-50 global profit sharing with Merck
Intratumoral immuno-oncology	**mRNA-2416**	OX40L *Solid tumors/lymphoma* *Advanced ovarian carcinoma (Ph 2 cohort)*	Solid tumors/lymphoma	Ovarian	***Phase 2 cohort protocol amendment filed***		Worldwide
	mRNA-2752	OX40L+IL23+IL36γ (Triplet) *Solid tumors/lymphoma*		***Dosing at the second dose level***			Worldwide
	MEDI1191	IL12 *Solid tumors*		***IND open***			50-50 U.S. profit sharing; AZ to pay royalties on ex-U.S. sales
Localized regenerative therapeutics	**AZD8601**	VEGF-A *Myocardial ischemia*					AZ to pay milestones and royalties
Systemic secreted therapeutics	**mRNA-1944**	Antibody against Chikungunya virus		***First dose level enrolled***			Worldwide *DARPA funded*
	AZD7970	Relaxin *Heart failure*					50-50 U.S. profit sharing; AZ to pay royalties on ex-U.S. sales
	mRNA-3630	α-GAL *Fabry disease*					Worldwide
Systemic intracellular therapeutics	**mRNA-3704**	MUT *Methylmalonic Acidemia (MMA)*		***IND open, Fast Track Designation***			Worldwide
	mRNA-3927	PCCA+PCCB *Propionic Acidemia (PA)*					Worldwide
	mRNA-3283	PAH *Phenylketonuria (PKU)*					Worldwide

2018 Financial Results (Unaudited)

Balance Sheets	December 31, 2018	December 31, 2017
Cash, cash equivalents and investments [1]	$ 1,694 mm	$ 902 mm

Statements of Cash Flows	2018	2017
Net cash used in operating activities	$ 331 mm	$ 331 mm
Cash used for purchases of property and equipment [2]	$ 106 mm	$ 58 mm

Statements of Operations	2018	2017
Total revenue	$ 135 mm	$ 206 mm
Research and development expenses	$ 454 mm	$ 410 mm
General and administrative expenses	$ 94 mm	$ 65 mm
Total operating expenses	$ 548 mm	$ 475 mm
Net loss	$ (385) mm	$ (256) mm

2019 expected cash position:
We expect cash, cash equivalents and investments at December 31, 2019 to be in the range of $1.15 billion to $1.20 billion.

Notes:

1. Excludes restricted cash, and includes 2018 financing activities as follows:
   - $661 mm net proceeds in 2018 from preferred stock financings and a $13 mm premium associated with the 2018 amended and restated personalized cancer vaccines agreement with Merck.
   - $563 mm net proceeds in 2018 from the initial public offering
2. Includes $95 mm in 2018 and $41 mm in 2017 related to our Norwood manufacturing facility.

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Moderna Priorities for 2019-2020

We focus on our portfolio of potential mRNA medicines, not "lead assets"

1. **Execute on the development pipeline**
   - 20 programs currently in development
   - Focus on demonstrating human proof of concept
2. **New development candidates in existing modalities**
3. **New development candidates in new modalities**

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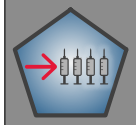
Anticipated clinical next steps

 **Prophylactic vaccines**	• **CMV** – Phase 1 safety and immunogenicity data; Phase 2 start • **hMPV+PIV3** – Phase 1b age de-escalation study start • **RSV** – Phase 2a start • **Zika** – IND filing
 **Cancer vaccines**	• **PCV** – Phase 1 clinical activity; randomized Phase 2 start • **KRAS** – Phase 1 start by Merck; Phase 1 T cell immunogenicity
 **Intratumoral immuno-oncology**	• **OX40L** – Initiate dosing of Phase 2 advanced ovarian carcinoma cohort • **OX40L+IL23+IL36γ (Triplet)** – Complete dose escalation and initiate dosing of disease-specific cohorts • **IL12** – Phase 1 start by AstraZeneca
 **Localized regenerative therapeutics**	• **VEGF** – Perfusion and cardiac function data from randomized Phase 2a study
 **Systemic secreted therapeutics**	• **Chikungunya antibody** – Phase 1 safety and serum antibody levels • **Fabry** – IND filing • **Relaxin** – IND filing (AstraZeneca)
 **Systemic intracellular therapeutics**	• **MMA** – Safety and proof of concept biomarker Phase 1/2 data • **PA** – IND filing • **PKU** – IND filing

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Moderna annual investor events

May 7, 2019 – Science Day, Cambridge MA

September 12, 2019 – R&D Day, New York NY

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Moderna on March 6, 2019

Pipeline

3
Open INDs

5
Ph 1 trials ongoing

6
Positive Ph 1 readouts

4
Programs in or planning for Ph 2

Programs in Development

5
Immuno-Oncology

- OX40L preparing for Ph 2 cohort
- PCV preparing for Ph 2
- Triplet in Ph 1
- KRAS & IL12 - open INDs

4
Rare Disease

- MMA - open IND
- PA, PKU & Fabry in GLP Tox
- Chikungunya Ab read-through to rare disease portfolio, in Ph 1

3
Vaccines for major unmet needs

- RSV – Merck planning Ph 2
- hMPV+PIV3 – positive interim Phase 1 data
- CMV in Ph 1

Foundations

>750
employees

A fully-integrated
200,000 sq. ft.
GMP site operational in Norwood, MA

$1.7 bn
of cash, cash equivalents, and investments as of Dec 31, 2018
(unaudited)

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Our Mission

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