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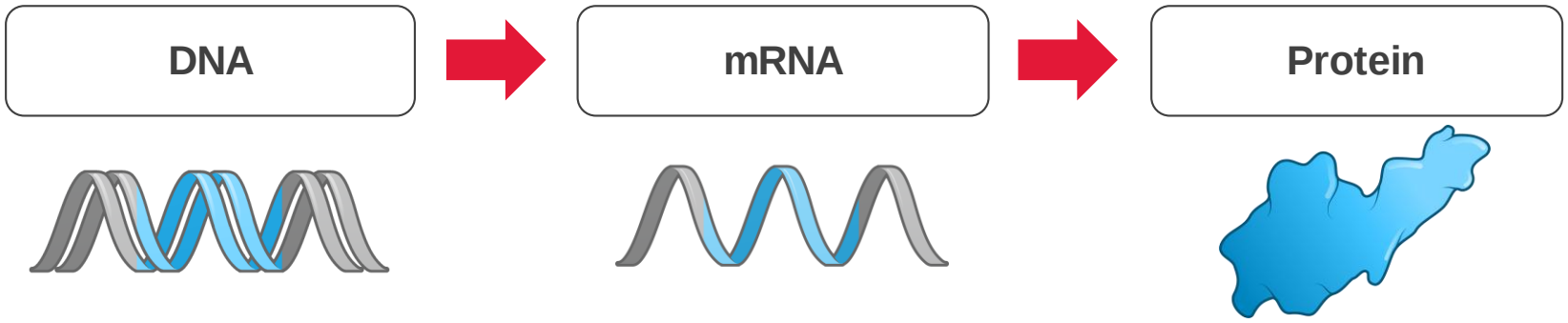

CMV vaccine (mRNA-1647)
7-month interim analysis call
January 10, 2020

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, the expected Phase 3 trial dosing regimen, the timing of the Phase 2 trial and the start of the Phase 3 trial, the number of subjects expected to be needed in the Phase 3 trial, the size of the potential commercial opportunity of an approved and launched CMV vaccine, statements concerning potential development candidate applications, development candidate activities, preclinical and clinical studies, regulatory submissions and approvals, risk management and estimates and forward-looking projections with respect to Moderna or its anticipated future performance or events. 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 category 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 category 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 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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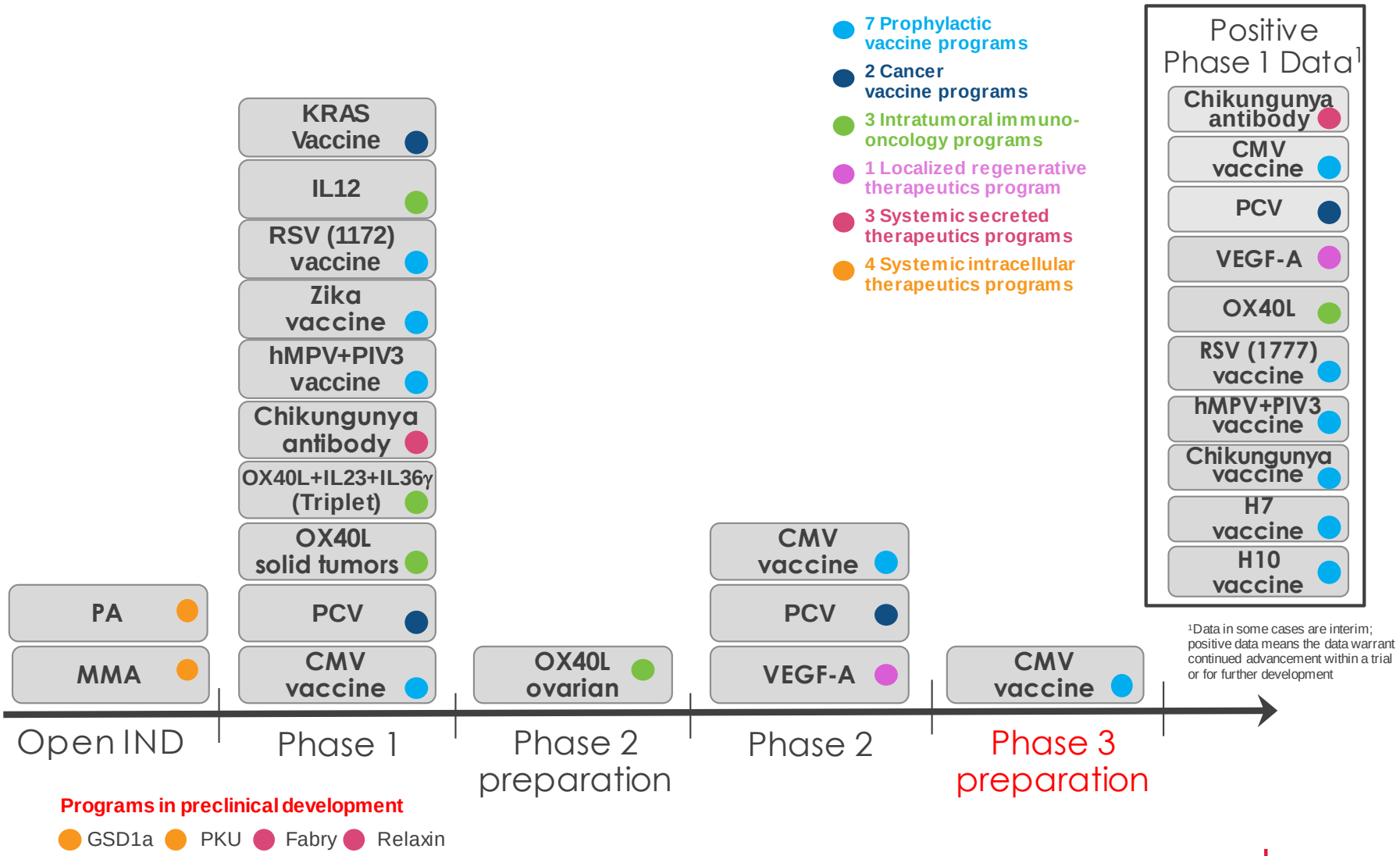
Moderna's development pipeline (as of January 10, 2020)

mRNA-1647 is the first mRNA infectious disease vaccine to start a phase 2



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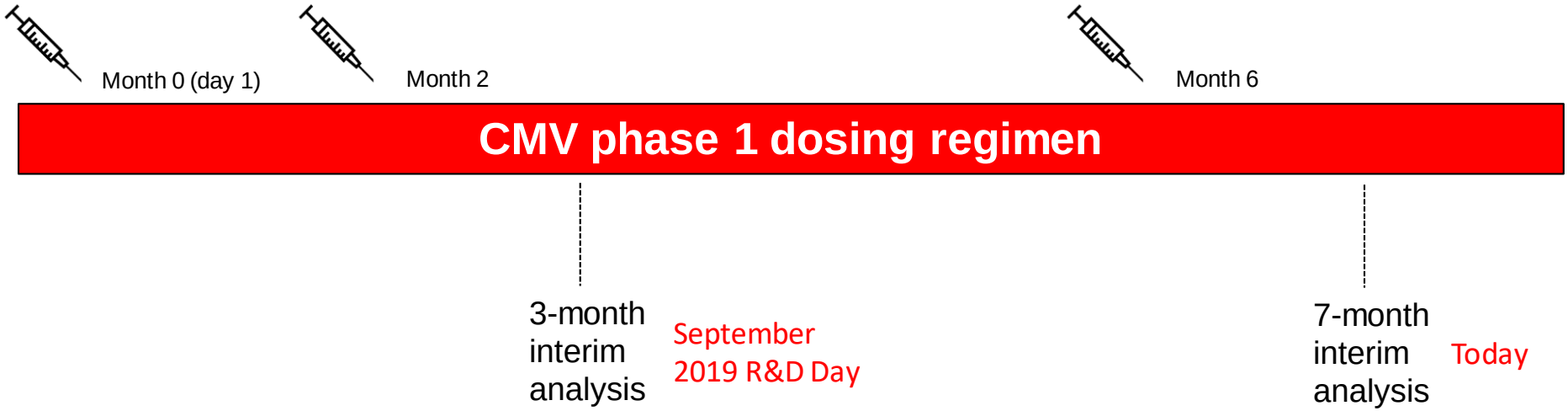
CMV data generation to date



First interim analysis: Seronegative subjects successfully immunized after second vaccination to generate neutralizing titers against CMV

Second interim analysis: Neutralizing antibody titers continued to increase after third vaccination in both epithelial and fibroblast cell assays

- Phase 2 trial uses the same dosing regimen
- Phase 3 trial will use the same dosing regimen

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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

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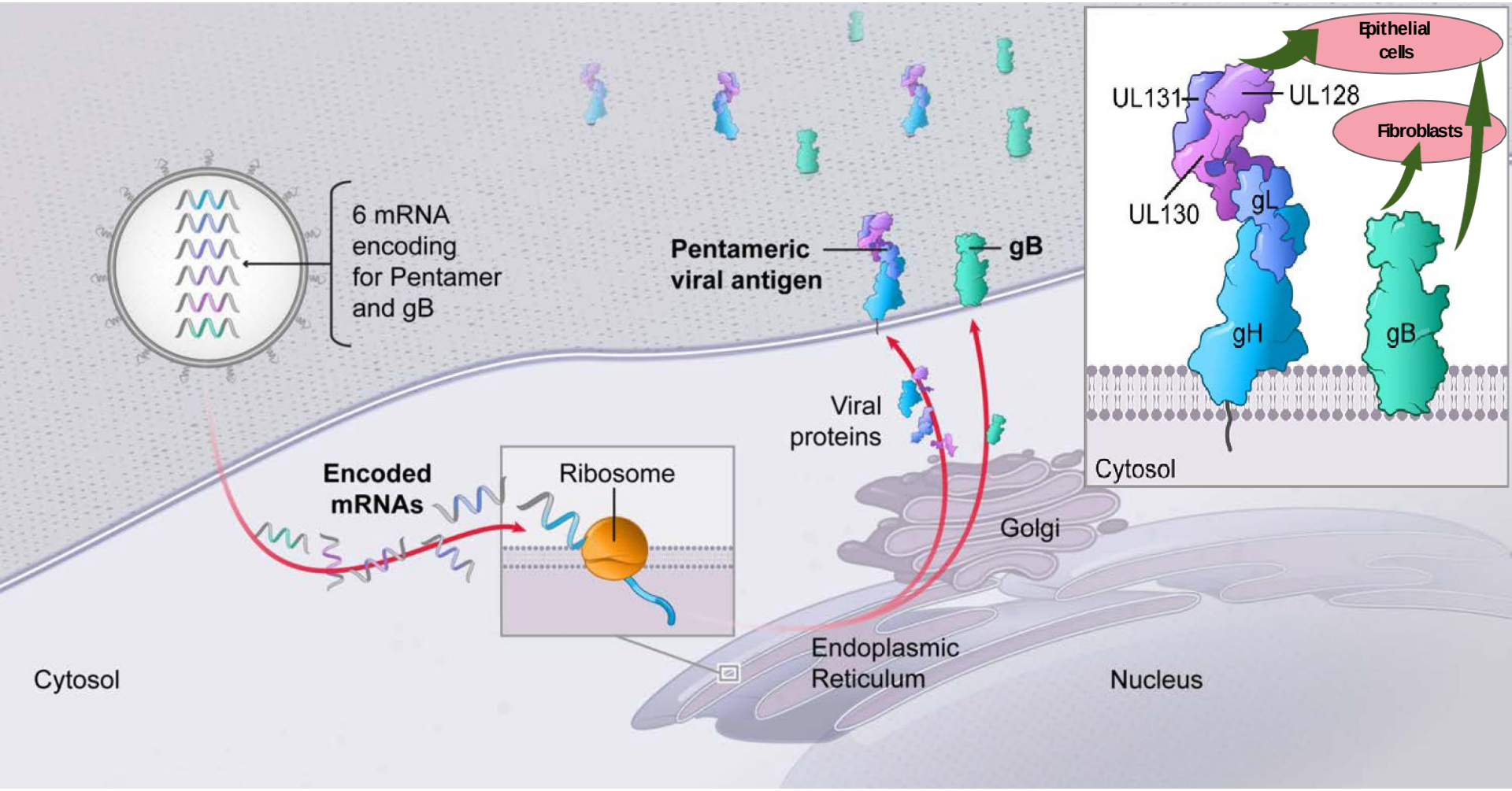
Congenital CMV vaccine includes 6 mRNAs

5 encode the Pentamer, 6th encodes gB antigen



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CMV vaccine (mRNA-1647) phase 1 trial

Key objective:

- To assess the safety, reactogenicity, and immunogenicity of different dose levels of mRNA-1647

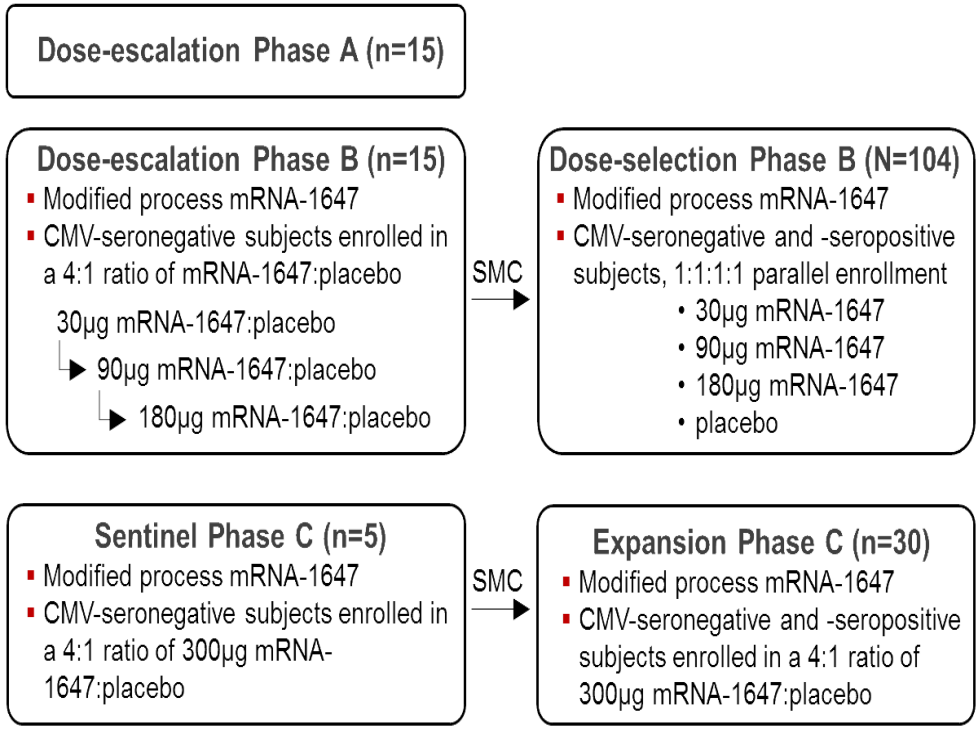
Primary endpoint: Safety

Secondary endpoints:

- Neutralizing antibodies against CMV infection of epithelial cells and fibroblasts
- Binding antibodies to gB and Pentamer antigens

Trial progress:

- FSFV: December 2017
- Enrollment completed June 2019 (N=181)
- Vaccinations completed December 2019
- Phase B – interim data post 2nd vaccination reported Sept 2019
- **Phase B – interim data post 3rd vaccination reported today**
- **Phase C – interim data post 2nd vaccination reported today**



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Immunogenicity in CMV-seronegative participants, per-protocol set

Neutralizing Antibodies Against Epithelial Cell Infection
CMV-seropositive GMT benchmark = 5,917[1]

	Phase B				Phase C	
	Placebo	30 µg	90 µg	180 µg	Placebo	**300 µg**
GMT baseline	8	8	8	8	8	**8**
GMT post 1st vaccination (month 1)	8	37	708	1,387	8	**1,481**
GMT post 2nd vaccination (month 3)	12	3,263	15,305	30,743	8	**43,564**
GMT post 3rd vaccination (month 7)	**18**	**16,587**	**63,929**	**62,118**	**NA**	**NA**
GMT/benchmark post 2nd vaccination	---	0.6	2.6	5.2	---	**7.4**
GMT/benchmark post 3rd vaccination	---	**2.8**	**10.8**	**10.5**	**--**	**NA**

Neutralizing Antibodies Against Fibroblast Infection
CMV-seropositive GMT benchmark = 1,449[1]

	Phase B				Phase C	
	Placebo	30 µg	90 µg	180 µg	Placebo	**300 µg**
GMT baseline	8	8	8	8	8	**8**
GMT post 1st vaccination (month 1)	8	8	24	10	8	**18**
GMT post 2nd vaccination (month 3)	10	305	1,141	1,264	8	**1,091**
GMT post 3rd vaccination (month 7)	**17**	**1,131**	**1,890**	**2,029**	**NA**	**NA**
GMT/benchmark post 2nd vaccination	---	0.2	0.8	0.9	---	**0.8**
GMT/benchmark post 3rd vaccination	---	**0.8**	**1.3**	**1.4**	**NA**	**NA**

Bold face = new data as of January 2020
GMT = geometric mean titer; CMV-seropositive benchmark values derived from baseline values of all CMV seropositive participants; NA= not available
[1] The seropositive benchmark at the 3-month interim analysis as disclosed in September was 5,588 and 1,295 for epithelial cell and fibroblast infection respectively, with an n=38. With the enrollment of an additional 30 seropositive subjects in connection with the phase C 300 µg dose level, the seropositive benchmark is now 5,917 and 1,449 for epithelial and fibroblast respectively, with an n=68.

- Neutralizing antibody titers against both epithelial cell and fibroblast infection continued to increase after the third vaccination
- Neutralizing titers against epithelial cell infection were 10-fold higher than CMV seropositive GMT benchmark after the third vaccination
- Neutralizing antibody titers against fibroblasts were 1.4-fold higher after the third vaccination

Subject n at each timepoint, epithelial cell and fibroblast infection

	Pla	30 µg	90 µg	180 µg	Pla	300 µg
Baseline	13	17	14	15	3	13
Month 1	12	17	10	15	3	12
Month 3	11	14	12	12	3	11
Month 7	10	11	12	11	NA	NA

Immunogenicity in CMV-seropositive participants, per-protocol set

Neutralizing Antibodies Against Epithelial Cell Infection
CMV-seropositive GMT benchmark = 5,917[1]

	Phase B				Phase C	
	Placebo	30 µg	90 µg	180 µg	Placebo	**300 µg**
GMT baseline	8,169	3,614	5,634	5,700	6,900	**7,179**
GMT post 1st vaccination (month 1)	7,891	24,752	39,020	52,775	6,673	**84,628**
GMT post 2nd vaccination (month 3)	7,490	49,390	62,400	119,829	5,974	**156,583**
GMT post 3rd vaccination (month 7)	**7,647**	**76,914**	**141,020**	**211,503**	**NA**	**NA**
GMR post 2nd vaccination	0.9	14.4	9.9	19.4	0.9	**17.3**
GMR post 3rd vaccination	**1.0**	**26.2**	**22.4**	**40.8**	**NA**	**NA**

Neutralizing Antibodies Against Fibroblast Infection
CMV-seropositive GMT benchmark = 1,449[1]

	Phase B				Phase C	
	Placebo	30 µg	90 µg	180 µg	Placebo	**300 µg**
GMT baseline	1,298	1,094	1,458	1,371	3,631	**1,836**
GMT post 1st vaccination (month 1)	1,278	2,654	3,885	3,879	3,382	**5,419**
GMT post 2nd vaccination (month 3)	1,451	2,517	3,891	5,578	2,797	**7,788**
GMT post 3rd vaccination (month 7)	**2,673**	**3,412**	**8,433**	**6,098**	**NA**	**NA**
GMR post 2nd vaccination	1.1	2.5	3.0	4.1	0.8	**3.8**
GMR post 3rd vaccination	**2.2**	**4.0**	**6.5**	**3.9**	**NA**	**NA**

Bold face = new data as of January 2020
GMT = geometric mean titer; GMR=geometric mean ratio, defined as the average of the ratio between Baseline/post 2nd or 3rd vaccination for each participant
CMV-seropositive benchmark values derived from baseline values of all CMV seropositive participants; NA= not available
GMT values at 30µg dose post 2nd vaccination for the 3-month IA September disclosure is based on n=10, and for the 7-month IA January disclosure is based on n=11
[1] The seropositive benchmark at the 3-month interim analysis as disclosed in September was 5,588 and 1,295 for epithelial cell and fibroblast infection respectively, with an n=38. With the enrollment of an additional 30 seropositive subjects in connection with the phase C 300 µg dose level, the seropositive benchmark is now 5,917 and 1,449 for epithelial and fibroblast respectively, with an n=68.

- In seropositive subjects, the third vaccination boosted neutralizing antibody titers by 22-fold and 40-fold over baseline levels
- Neutralizing antibody titers against fibroblast infection were boosted 4-fold to 6-fold over baseline levels

Subject n at each timepoint epithelial cell infection

	Pla	30 µg	90 µg	180 µg	Pla	300 µg
Baseline	14	13	12	13	3	13
Month 1	14	13	12	13	3	13
Month 3	12	11	9	9	3	9
Month 7	12	10	9	6	NA	NA

Subject n at each timepoint fibroblast infection

	Pla	30 µg	90 µg	180 µg	Pla	300 µg
Baseline	14	13	12	13	3	13
Month 1	14	13	12	13	3	13
Month 3	12	11	9	9	3	9
Month 7	12	10	9	5	NA	NA

Solicited adverse reactions (AR) post 2nd vaccination, solicited safety set

		CMV Serostatus at Baseline											
		CMV-seronegative						CMV-seropositive					
		Phase B				Phase C		Phase B				Phase C	
		Placebo	30 µg	90 µg	180 µg	Placebo	300 µg	Placebo	30 µg	90 µg	180 µg	Placebo	300 µg
Local ARs	**Pain**	-	11 (73%) -	11 (79%) 2 (14)	12 (80%) 2 (13)	-	**10 (91%)** **2 (18)**	-	9 (75%) 1 (8)	10 (77%) -	10 (91%) 3 (27)	-	**9 (100%)** **3 (33)**
	Redness	-	-	-	3 (21) -	-	**2 (22)** **1 (11)**	-	-	-	2 (18) 1 (9)	-	**-**
	Swelling	-	-	-	-	-	**2 (25)** **1 (13)**	-	-	-	1 (9) -	-	**1 (14)** **-**
Most common systemic ARs	**Headache**	3 (25) -	5 (33) -	8 (57) -	9 (60) 2 (13)	-	**9 (82)** **-**	2 (14) -	4 (33) 1 (8)	6 (46) -	9 (82) 2 (18)	-	**8 (89)** **2 (22)**
	Fatigue	2 (17) -	5 (33) 1 (7)	6 (43) 1 (7)	11 (73) 1 (7)	-	**9 (82)** **-**	1 (7) -	7 (58) 3 (25)	9 (69) 1 (8)	8 (73) 3 (27)	-	**7 (78)** **2 (22)**
	Myalgia	1 (8) -	5 (33) 1 (7)	6 (43) 3 (21)	11 (73) 2 (13)	1 (33) -	**7 (70)** **1 (10)**	-	5 (42) 4 (33)	9 (69) 1 (8)	7 (64) 2 (18)	-	**7 (78)** **1 (11)**
	Arthralgia	-	4 (27) -	5 (36) -	9 (60) 2 (13)	1 (33) -	**4 (40)** **1 (10)**	-	5 (42) 3 (25)	6 (46) -	5 (46) 2 (18)	-	**8 (89)** **1 (11)**
	Nausea	1 (8) -	4 (27) -	4 (29) -	7 (47) 1 (7)	-	**4 (40)** **1 (10)**	-	2 (17) 1 (8)	7 (54) 1 (8)	7 (64) 2 (18)	-	**6 (67)** **1 (11)**
	Chills	1 (8) -	3 (20) 1 (7)	6 (43) 1 (7)	11 (73) 3 (20)	1 (33) -	**8 (80)** **1 (10)**	-	6 (50) 1 (8)	8 (62) 1 (8)	9 (82) 3 (27)	-	**7 (78)** **2 (22)**
	Fever	-	3 (20) -	3 (21) 1 (7)	5 (33) -	1 (33) -	**6 (55)** **1 (9)**	-	2 (17) -	6 (46) 3 (23)	6 (55) 2 (18)	-	**6 (67)** **3 (33)**

Values represent n (%) participants reporting each AR, red text=grade 3 ARs

- One asymptomatic Grade 4 elevation in partial thromboplastin time (PTT), Grade 1 at baseline, deemed related to study product, normal value on retesting (180 µg treatment group)
- No vaccine-related serious adverse events (SAEs)

Solicited adverse reactions (AR) post 3rd vaccination, solicited safety set

		CMV Serostatus at Baseline							
		CMV-seronegative				CMV-seropositive			
		Placebo	30 µg	90 µg	180 µg	Placebo	30 µg	90 µg	180 µg
Local ARs	Pain	1 (9%) -	8 (73%) -	7 (54%) 1 (8)	9 (75%) 1 (8)	-	8 (73%) -	6 (60%) -	6 (100%) -
	Redness	-	-	2 (15) -	1 (8) -	-	-	2 (20) -	1 (17) -
	Swelling	-	-	1 (8) -	1 (8) -	-	-	1 (10) -	-
Most common systemic ARs	Headache	1 (9) -	4 (36) -	4 (31) -	6 (50) 2 (17)	3 (23) -	5 (46) 1 (9)	6 (60) -	5 (83) 1 (17)
	Fatigue	1 (9) -	4 (36) -	5 (39) 1 (8)	7 (58) 2 (17)	1 (8) -	5 (46) -	7 (70) -	4 (67) 1 (17)
	Myalgia	-	3 (27) -	6 (46) 1 (8)	6 (50) 2 (17)	-	5 (46) 1 (9)	6 (60) -	3 (50) -
	Arthralgia	-	3 (27) -	5 (39) -	6 (50) -	-	4 (36) -	4 (40) -	2 (33) -
	Nausea	-	2 (18) -	3 (23) -	4 (33) -	1 (8) -	4 (36) 1 (9)	5 (50) -	1 (17) -
	Chills	-	2 (18) -	5 (39) -	4 (33) 1 (8)	-	3 (27) 1 (9)	6 (60) -	4 (67) 1 (17)
	Fever	-	1 (9) -	1 (8) -	3 (25) -	-	1 (9) -	4 (40) 1 (10)	3 (50) 1 (17)

Values represent n (%) participants reporting each AR, red text=grade 3 ARs

- No vaccine-related serious adverse events (SAEs)

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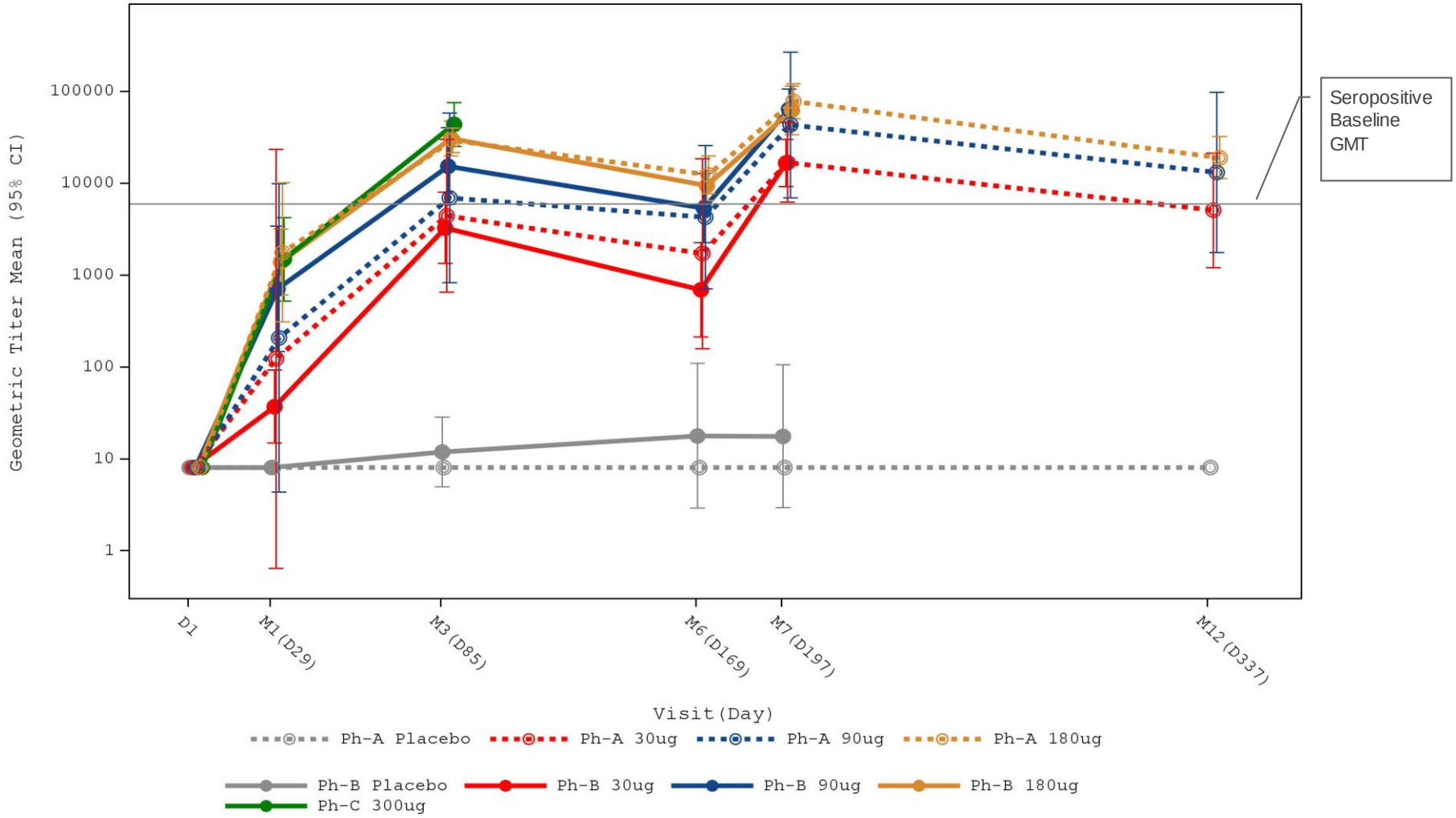
Durable immunogenicity demonstrated in seronegative initial cohort

Neutralizing antibodies against epithelial cell infection



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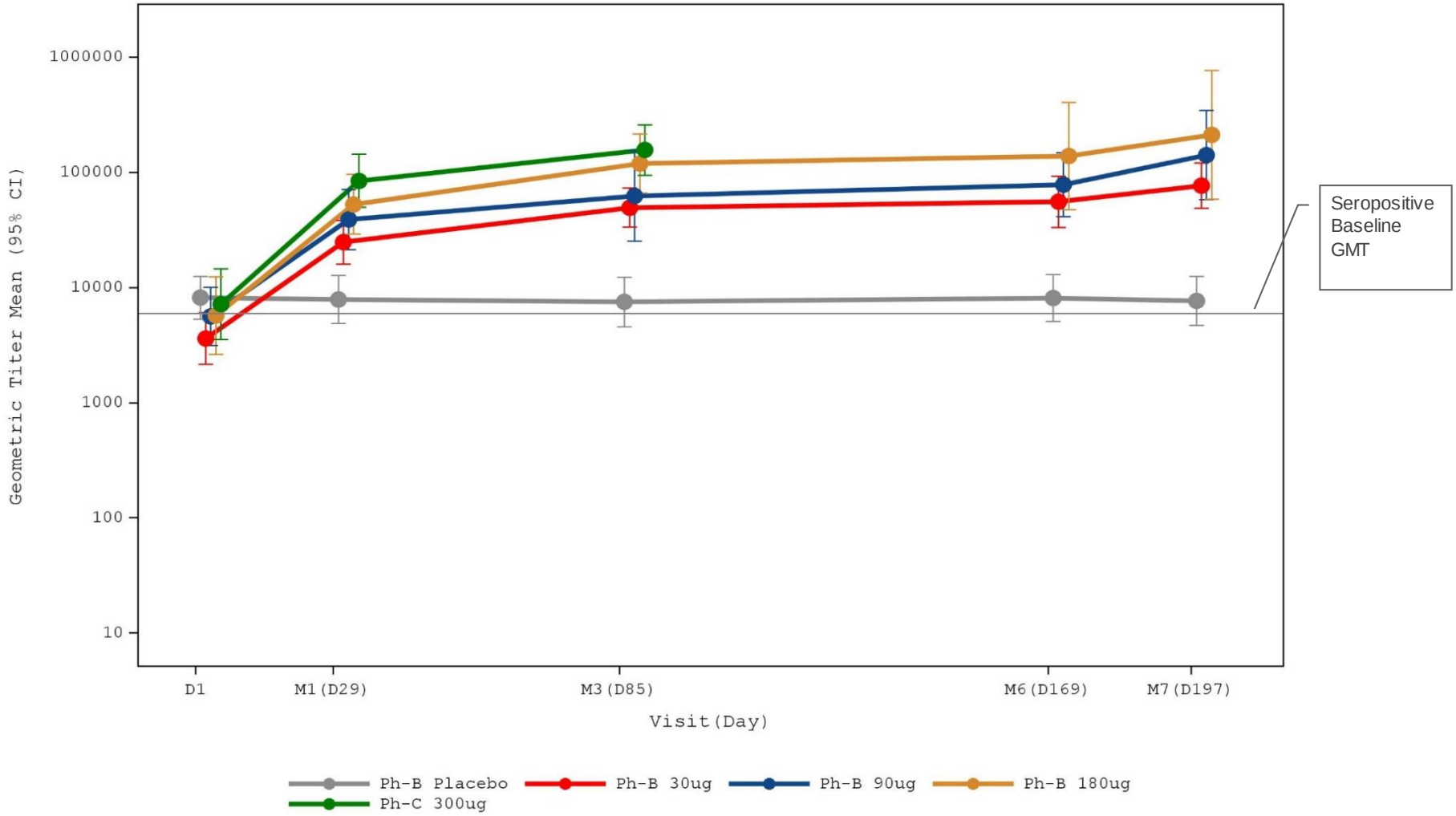
Additional boosting demonstrated in seropositive cohort

Neutralizing antibodies against epithelial cell infection



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CMV vaccine (mRNA-1647)

7-month interim analysis summary

- **Safety:** The vaccine was generally well-tolerated and there were no vaccine-related serious adverse events (SAEs). Safety and tolerability at the 300µg dose level was comparable to that observed at the 180µg dose level

- **In the CMV-seronegative group at seven months, neutralizing antibody titers:**
  - Continued to increase after the third vaccination in both epithelial cell and fibroblast assays
  - Against epithelial cell infection were greater than 10-fold higher than CMV-seropositive baseline titers at the 90 and 180 µg dose levels after the third vaccination, compared to 3-fold to 5-fold higher after the second vaccination
  - Against fibroblast infection were 1.4-fold higher than CMV-seropositive baseline titers at the 90 and 180 µg dose levels after the third vaccination, compared to titers that were comparable to CMV-seropositive baseline titers after the second vaccination

- **In the CMV-seropositive group, neutralizing antibody titers:**
  - Continued to increase in both epithelial cell and fibroblast assays
  - Boosted against epithelial cell infection to levels of 22-fold to 40-fold over baseline across treatment groups, compared to 10-fold to 19-fold over baseline after the second vaccination
  - Boosted neutralizing antibody titers against fibroblast infection to levels of 4-fold to 6-fold over baseline across treatment groups, compared to 2-fold to 4-fold over baseline after the second vaccination

- **Early evidence of durability out to 12 months**

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Phase 2 dose confirmation study

- The phase 2 dose-confirmation study implements the intended phase 3 formulation of the mRNA-1647 vaccine, which contains the same proprietary lipid nanoparticle (LNP) used in the phase 1 study
- US sites only
- 3 dose levels (50µg, 100µg, 150µg); randomized, double-blind, placebo-controlled
- N=252 adult females/males 18-40 years of age (both seronegative & seropositive status)
- First participants dosed in phase 2 dose-confirmation study
- **First interim analysis**: safety and immunogenicity through 1 month after 2nd vaccination **anticipated in 2H20**

= Selected investigator site location for phase 2 dose confirmation study

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Phase 3 preparations ongoing

- Received Type C meeting feedback from FDA on **primary endpoint**: prevention of primary CMV infection in a population that includes women of childbearing age (WOCBA)
- We believe we can achieve this objective with a **<8,000 subject trial**
- Preparation and product manufacturing are now underway for the pivotal phase 3 study designed to evaluate the efficacy of mRNA-1647 against primary CMV infection
- Expected to begin in 2021
- Sites anticipated to be in USA and Europe

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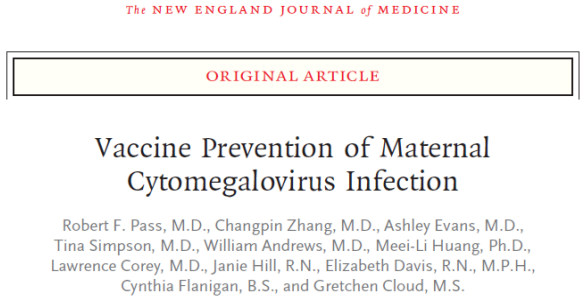
CMV is a blockbuster opportunity

- Estimated annual peak sales of $2-5 billion
- Assuming GARDASIL[2] 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 global rights to mRNA-1647



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

[1]Merck investor day, 2019
[2]GARDASIL ® is a registered trademark of Merck & Co., Inc
[3]Gross margin at scale in the U.S.

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Our Mission

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