## COVID-19 vaccine (mRNA-1273)

**Last program update: January 11, 2020**

<table>
<thead>
<tr>
<th>Modality</th>
<th>ID #</th>
<th>Program</th>
<th>Preclinical development</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Commercial</th>
<th>Moderna rights</th>
</tr>
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<tbody>
<tr>
<td>Prophylactic vaccines</td>
<td>mRNA-1273</td>
<td>COVID-19 vaccine</td>
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<td></td>
<td>Worldwide</td>
<td>BARDA funded</td>
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<tr>
<td></td>
<td>mRNA-1647</td>
<td>Cytomegalovirus (CMV) vaccine</td>
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<td>mRNA-1653</td>
<td>hMPV/PIV3 vaccine</td>
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<td>mRNA-1893</td>
<td>Zika vaccine</td>
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<td>mRNA-1345</td>
<td>Respiratory syncytial virus (RSV) vaccine</td>
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<td>mRNA-1189</td>
<td>Epstein-Barr virus (EBV) vaccine</td>
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<td>mRNA-1010</td>
<td>Flu vaccine</td>
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<td>mRNA-1020</td>
<td>Flu vaccine</td>
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<td>mRNA-1030</td>
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<td>mRNA-1215</td>
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<td>mRNA-1574</td>
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<td>Advancing subject to funding</td>
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<td>mRNA-1851</td>
<td>Influenza H7N9 vaccine</td>
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[Image: slide from Moderna presentation]
Forward-looking Statements and Disclaimer

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including regarding the Company’s development of a potential vaccine (mRNA-1273) against the novel coronavirus, mRNA-1273’s efficacy and its ability to prevent infection or mitigate symptoms of COVID-19, the safety profile for mRNA-1273, the Company’s plans to seek regulatory approval for the use of mRNA-1273 in the U.S. and other jurisdictions, the conditions under which mRNA-1273 can be shipped, stored and administered, the Company’s sales of mRNA-1273 and the status of negotiations for such sales, and the Company’s anticipated production of mRNA-1273. In some cases, forward-looking statements can be identified by terminology such as “will,” “may,” “should,” “could,” “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: the fact that there has never been a commercial product utilizing mRNA technology approved for use; the fact that the rapid response technology in use by Moderna is still being developed and implemented; the fact that the safety and efficacy of mRNA-1273 has not yet been established; despite having ongoing interactions with the FDA or other regulatory agencies, the FDA or such other regulatory agencies may not agree with the Company’s regulatory approval strategies, components of our filings, such as clinical trial designs, conduct and methodologies, or the sufficiency of data submitted; potential adverse impacts due to the global COVID-19 pandemic such as delays in regulatory review, manufacturing and clinical trials, supply chain interruptions, adverse effects on healthcare systems and disruption of the global economy; and those other risks and uncertainties described under the heading “Risk Factors” in Moderna’s most recent Quarterly Report on Form 10-Q 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 contained 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.
Moderna COVID-19 Vaccine: Indication & Safety Information

Authorized Use in the United States:
The Moderna COVID-19 Vaccine is authorized for use under an Emergency Use Authorization (EUA) from the U.S. Food and Drug Administration (FDA) for active immunization to prevent coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in individuals 18 years of age and older.

Important Safety Information:

• Do not administer the Moderna COVID-19 Vaccine to individuals with a known history of severe allergic reaction (e.g., anaphylaxis) to any component of the Moderna COVID-19 Vaccine.

• Appropriate medical treatment to manage immediate allergic reactions must be immediately available in the event an acute anaphylactic reaction occurs following administration of the Moderna COVID-19 Vaccine. Monitor Moderna COVID-19 Vaccine recipients for the occurrence of immediate adverse reactions according to the Centers for Disease Control and Prevention guidelines (https://www.cdc.gov/vaccines/covid-19/).

• Immunocompromised persons, including individuals receiving immunosuppressive therapy, may have a diminished response to the Moderna COVID-19 Vaccine.

• The Moderna COVID-19 Vaccine may not protect all vaccine recipients.

• Adverse reactions reported in a clinical trial following administration of the Moderna COVID-19 Vaccine include pain at the injection site, fatigue, headache, myalgia, arthralgia, chills, nausea/vomiting, axillary swelling/tenderness, fever, swelling at the injection site, and erythema at the injection site.

• Available data on Moderna COVID-19 Vaccine administered to pregnant women are insufficient to inform vaccine-associated risks in pregnancy. Data are not available to assess the effects of Moderna COVID-19 Vaccine on the breastfed infant or on milk production/excretion.

• There are no data available on the interchangeability of the Moderna COVID-19 Vaccine with other COVID-19 vaccines to complete the vaccination series. Individuals who have received one dose of Moderna COVID-19 Vaccine should receive a second dose of Moderna COVID-19 Vaccine to complete the vaccination series.

• Additional adverse reactions, some of which may be serious, may become apparent with more widespread use of the Moderna COVID-19 Vaccine.

• Vaccination providers must complete and submit reports to VAERS online at https://vaers.hhs.gov/reportevent.html. For further assistance with reporting to VAERS, call 1-800-822-7967. The reports should include the words "Moderna COVID-19 Vaccine EUA" in the description section of the report.
Primary Efficacy Analysis in Phase 3 COVE Study for COVID-19 Vaccine Candidate

- Primary efficacy analysis of Moderna’s COVID-19 vaccine indicates a vaccine efficacy of 94.1%
  - Vaccine efficacy has been demonstrated at the first interim analysis with a total of 95 cases based on the pre-specified success criterion on efficacy
  - Primary analysis on November 30th was based on 196 cases, of which 185 cases of COVID-19 were observed in the placebo group versus 11 cases observed in the mRNA-1273 group
  - A secondary endpoint analyzed severe cases of COVID-19 and included 30 severe cases (as defined in the study protocol) in this analysis
    - All 30 cases occurred in the placebo group and none in the mRNA-1273 vaccinated group
    - There was one COVID-19-related death in the study to date, which occurred in the placebo group
  - The 196 COVID-19 cases included 33 older adults (ages 65+) and 42 participants identifying as being from diverse communities (including 29 Hispanic or LatinX, 6 Black or African Americans, 4 Asian Americans and 3 multiracial participants)

- COVID-19 vaccine continues to be generally well tolerated; no serious safety concerns identified to date
  - Safety data continue to accrue and the study continues to be monitored by an independent, NIH-appointed Data Safety Monitoring Board (DSMB)

- COVID-19 vaccine is authorized in over 30 countries
  - Authorized/conditional approvals in USA (FDA EUA), EU (EMA), UK (MHRA), Canada (Health Canada) and Israel (MOH)

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1. Data are subject to change based on ongoing analysis of further Phase 3 COVE study data and final analysis
2. Data updated as of November 30, 2020
Key objective:
• To assess the safety, reactogenicity and immunogenicity of mRNA-1273

Study design:
• Phase 1, open-label dose ranging clinical trial in healthy adults
• Subjects received an intramuscular (IM) injection (0.5 milliliter [mL]) of mRNA-1273 on Days 1 and 29 in the deltoid muscle and will be followed through 12 months post second vaccination (Day 394)

Primary endpoint:
• Safety and reactogenicity of a 2-dose vaccination schedule of mRNA-1273, given 28 days apart

Secondary endpoint:
• Evaluate the immunogenicity to the SARS-CoV-2 S protein following a 2-dose vaccination schedule of mRNA-1273 at Day 57

Trial progress/details:
• Original 3 dose cohorts 25 µg, 100 µg and 250 µg (18-55 years old) Day 57 data published in The New England Journal of Medicine
• Interim analysis of the 100 µg dose for the 56-70 and 71+ age cohorts presented at ACIP Meeting
• 50 µg dose across three age cohorts (18-55, 56-70 and 71+) are fully enrolled

Safety data from Phase 1 trial

Phase 1: No Vaccine-Related SAEs Have Been Reported

Solicited Local and Systemic Symptoms Followed for 7 Days Post-vaccination

Majority of symptoms resolved within 2 days, some persisted as long as 5 days

| Symptom                  | Age group 1 | Vaccination 1 | | Age group 2 | Vaccination 2 | |
|--------------------------|-------------|---------------|---|-------------|---------------|---
| Any systemic symptom     | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Arthralgia               | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Fatigue                  | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Fever                    | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Chills                   | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Headache                 | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |

| Symptom                  | Age group 1 | Vaccination 1 | | Age group 2 | Vaccination 2 | |
|--------------------------|-------------|---------------|---|-------------|---------------|---
| Myalgia                  | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Nausea                   | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Any local symptom        | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Erythema, redness        | 18-55       |               | | 56-70       |               | |
| measurement              | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Induration/              | 18-55       |               | | 56-70       |               | |
| swelling measurement     | 56-70       |               | | 71+         |               | |
|                          |             |               |---|-------------|---------------|---
| Pain                     | 18-55       |               | | 56-70       |               | |
|                          | 56-70       |               | | 71+         |               | |

1. Fever percentages reflect the number of subjects with at least one measurement available in the data system as the denominator. This denominator may differ from other systemic symptoms, which are solicited in-clinic at the post-dose assessment.

2. 18-55: N=15; 56-70: N=10; 71+: N=10; N = All subjects receiving Dose 1 with any solicited event data recorded in the database.
Binding antibodies comparable across age groups (Phase 1)

S-2P binding antibodies (ELISA)- 100 µg at Day 1 and Day 29

- 100 µg two-dose series seroconverted all participants after the first vaccination
- After the first vaccination, AUC for all age groups exceeded the median of convalescent sera
- After two vaccinations, all age groups are equivalent to high-titer convalescent sera (i.e., upper quartile)


Interim Immunogenicity Report
Distribution of antibody titers in pseudovirus neutralization assay comparable across age groups (Phase 1)

Pseudovirus neutralization assay titers (ID$_{50}$) - 100 μg at Day 1 and Day 29

- After second vaccination, pseudovirus neutralization responses were detected in all participants
- Pseudovirus neutralization titers were comparable across age groups
- Pseudovirus neutralization titer for 56-70 and 71+ YOA above convalescent sera median titer at Day 57

D57: one month post-dose 2
GMT: geometric mean antibody titer
95% CI: 95% confidence interval
Vaccination administered at Day 1 and Day 29

Interim Immunogenicity Report
mRNA-1273 elicited Th1-biased CD4 T cell responses in all participants (Phase 1)

Th1 CD4+ T cell response, S1 peptide pool (100 μg at Day 1 and 29)

- Vaccination with 100 μg mRNA-1273 led a Th1-biased CD4+ T-cell response across all age groups
- Th2 phenotype was rare (data not shown)

Interim Immunogenicity Report
# Pivotal Phase 3 efficacy, safety and immunogenicity study

**Fully enrolled (N=30,000) on October 22nd**

## Phase 3 trial overview (NCT04470427)

<table>
<thead>
<tr>
<th>Protocol Title</th>
<th>A Phase 3, Randomized, Stratified, Observer-Blind, Placebo-Controlled Study to Evaluate the Efficacy, Safety, and Immunogenicity of mRNA-1273 SARS-CoV-2 Vaccine in Adults Aged 18 Years and Older</th>
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<tbody>
<tr>
<td>Study Groups</td>
<td>Strata</td>
</tr>
<tr>
<td></td>
<td>≥ 65 years</td>
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<tr>
<td></td>
<td>&lt; 65 years at increased risk for complication of COVID-19 (&quot;at risk&quot;)</td>
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<tr>
<td></td>
<td>&lt; 65 years and not at risk</td>
</tr>
<tr>
<td>Participant Population</td>
<td>Approximately 30,000 participants (case driven) whose locations or circumstances put them at appreciable risk of acquiring COVID-19 and/or SARS-CoV-2 infection</td>
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<tr>
<td></td>
<td>&quot;All-comers&quot; with regard to SARS-CoV-2 serostatus (baseline serology will be collected)</td>
</tr>
<tr>
<td>Study Objectives</td>
<td>To demonstrate the efficacy of mRNA-1273 to prevent COVID-19</td>
</tr>
<tr>
<td>Study Duration</td>
<td>Approximately 25 months for each participant corresponding to a 24-month follow up after the last vaccine administration</td>
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</tbody>
</table>
COVE study successfully recruited diverse and representative participants

- 37% of the 30,000 participants are from communities of color, similar to diversity of the U.S. at large
- 6,000+ Hispanic/Latinx participants, 3,000+ Black/African American participants and 7,000+ participants over the age of 65

Race and ethnicity distribution:
- White: 63%
- Hispanic/Latinx: 20%
- Black/AA: 10%
- All Others: 3%
- Asian: 4%
- Other: 4%

Age breakdown:
- 18 to 24: 5%
- 25 to 44: 29%
- 45 to 64: 39%
- 65 or above: 25%

Gender distribution:
- Male: 47%
- Female: 53%

* Numbers may not add up to 100 due to rounding

Interim data snapshot - October 21, 2020 - subject to change
COVE study successfully enrolled participants with risk factors for severe COVID-19 disease

Risk stratification

- >=65 years: 17%
- >18 and <65 years and at risk of severe disease: 25%
- >18 and <65 years and not at risk of severe disease: 58%

Comorbidities of at risk participants (all ages)

- Diabetes: 36%
- Severe Obesity: 19%
- Significant Cardiac Disease: 18%
- Chronic Lung Disease: 25%
- Liver Disease: 2%

8,000+ participants who are living with chronic conditions
A vaccine for everyone…find yourself in the COVE study

- **Hispanic**: 6,000+ participants
- **Educators and Students**: 9% participants
- **African American**: 3,000+ participants
- **Over 65 Years of Age**: 25% of participants
- **Male**: 53% of participants
- **Ages 25-44**: 29% of participants
- **Female**: Over 14,000 participants
- **Healthcare Workers**: 22% of participants
- **Living with Chronic Conditions**: Over 8,000 participants
- **Ages 45-64**: 39% of participants
- **Retail, Restaurant & Hospitality Workers**: Almost 2,000 participants
- **Educators and Students**: 9% participants
- **African American**: 3,000+ participants
- **Over 65 Years of Age**: 25% of participants
- **Male**: 53% of participants
- **Ages 25-44**: 29% of participants
- **Female**: Over 14,000 participants
- **Healthcare Workers**: 22% of participants
- **Living with Chronic Conditions**: Over 8,000 participants
- **Ages 45-64**: 39% of participants
- **Retail, Restaurant & Hospitality Workers**: Almost 2,000 participants
Publicly announced supply agreements

FY 2021 supply from 600 million to 1 billion doses

Deals signed

- United States (100 million doses with option for additional 400 million doses)
- European Union (80 million doses with option for additional 80 million doses)
- Japan (50 million doses)
- Canada (40 million doses with option for additional 16 million doses)
- South Korea (40 million doses)
- United Kingdom (17 million doses)
- Switzerland (7.5 million doses)
- Israel (6 million doses)
- Qatar
- Singapore
- Several countries not announced

Deals in negotiation

- COVAX (tiered pricing proposal)
- Many other countries

Pricing of deals signed

- Smaller volume agreements executed at $32-37/dose
- US at ~$25/dose for the first 100 million doses when including BARDA grant and potential performance-based payments

Signed APA’s
Distribution to any immunization locations using existing infrastructure

Storage Conditions within 6-month shelf life*

- **Freezer:** -20°C/-4°F for 6 months
- **Fridge:** 2°C-8°C/36°F-46°F for up to 30 days
- **Room temperature:** 12 hours post thaw

Flexible and adaptable supply chain

Uses standard existing vaccination infrastructure

No dilution required

Currently anticipate production of mRNA-1273 will be ~20 million doses by end of 2020

*Shelf life is expected based on data available as of November 16, 2020; product characteristics subject to regulatory review and approval. 30 day storage at refrigerator temperatures of 2-8°C is within 6-month shelf life.