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: initiating clinical trial sites outside of the U.S. for mRNA-3704; study start-up for mRNA-3927; finalization of a dose-confirmation Phase 2 study and planning for a pivotal Phase 3 study for mRNA-1647; the availability of additional funding from grants (including amounts not yet committed); the planned Phase 1 clinical trial for mRNA-1273 to be conducted by NIH; the dosing of the final cohorts in the near term for mRNA-1944; the expected initiation of Phase 1 clinical trials for mRNA-6231 and mRNA-6981; the Company’s expected cash, cash equivalents, and investments at December 31, 2019; and the Company’s expected net cash used in operating activities and purchases of property and equipment in 2019 and 2020. In some cases, forward-looking statements can be identified by terminology such as “will,” “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 press release 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: whether the interim Phase 1 results for mRNA-1944 will be predictive of any future clinical studies for mRNA-1944 or other development candidates with the same LNP formulation, including mRNA-3704 and mRNA-3927; preclinical and clinical development is lengthy and uncertain, especially for a new class of medicines such as mRNA, and therefore our 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; despite having ongoing interactions with the FDA or other regulatory agencies, the FDA or such other regulatory agencies may not agree with our regulatory approval strategies, components of our or filings, such as clinical trial designs, conduct and methodologies, or the sufficiency of data submitted; and those risks and uncertainties described under the heading “Risk Factors” 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 contained in this press release 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.

This presentation also contains estimates, projections and other statistical data made by independent parties and by Moderna relating to market size and growth and other data about Moderna's industry. These data involve a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of Moderna's future performance and the future performance of the markets in which the Company operates are necessarily subject to a high degree of uncertainty and risk.

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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
Risk management is essential to building a new class of medicines
2019 was an inflection year in Moderna’s history

Our modality strategy

- **CMV vaccine**
- **Zika vaccine**
- **H10/H7 influenza vaccine**
- **Personalized cancer vaccine**
- **KRAS cancer vaccine**
- **OX40L**
- **OX40L/IL-23/IL-36γ (triplet)**
- **VEGF-A (no LNP)**
- **Fabry**
- **Chikungunya antibody**
- **MMA**
- **PA**

**Modality**
- Prophylactic vaccines
- Cancer vaccines
- Intratumoral immuno-oncology
- Localized regenerative therapeutics
- Systemic secreted & cell surface therapeutics
- Systemic intracellular therapeutics
2019 was an inflection year in Moderna’s history

Our modality strategy

Core

- CMV vaccine
- Zika vaccine
- H10/H7 influenza vaccine
- Fabry
- Chikungunya antibody

Exploratory

- Personalized cancer vaccine
- OX40L/IL-23/IL-36γ (triplet)
- VEGF-A (no LNP)
- KRAS cancer vaccine
- OX40L

Technology risk

- Cancer vaccines
- Intratumoral immuno-oncology
- Localized regenerative therapeutics
- Systemic intracellular therapeutics
Expanding core modalities with additional development candidates

Core
- CMV vaccine
- Chikungunya antibody

Exploratory
- Personalized cancer vaccine
- OX40L/IL-23/IL-36γ (triplet)
- VEGF-A (no LNP)
- KRAS cancer vaccine
- OX40L

Technology risk
- Cancer vaccines
- Intratumoral immuno-oncology
- Localized regenerative therapeutics
- Systemic intracellular therapeutics

Biology risk
- Prophylactic vaccines
- Systemic secreted & cell surface therapeutics
Progression towards a new class of medicines
Progression towards a new class of medicines

Goal: Enter the clinic safely

Develop mRNA science, delivery technology and manufacturing

Scientific foundation

First-in-human (Dec. 2015)
Progression towards a new class of medicines

Goal: Validate modalities through clinical data

Explore mRNA technology across six different modalities

Develop mRNA science, delivery technology and manufacturing

Impact

Scientific foundation

First-in-human (Dec. 2015)

First Core Modality (4Q19)

Clinical data

Stage of development
Progression towards a new class of medicines

Goal: File multiple BLA(s) and continue exploration

Develop mRNA science, delivery technology and manufacturing

Explore mRNA technology across six different modalities

Build Core modalities

Investigate current and create new Exploratory modalities
Progression towards a new class of medicines

**Goal:** Deliver a large commercial portfolio of innovative medicines

1. **Scientific foundation**
   - Develop mRNA science, delivery technology and manufacturing

2. **First-in-human (Dec. 2015)**
   - Explore mRNA technology across six different modalities

3. **Clinical data**
   - Build Core modalities
   - Investigate current and create new Exploratory modalities

4. **Accelerated pipeline**
   - First Core Modality (4Q19)

5. **First BLA(s)**
   - Scale for commercial

**Stage of development**

- Develop mRNA science, delivery technology and manufacturing
- Explore mRNA technology across six different modalities
- Build Core modalities
- Investigate current and create new Exploratory modalities
Core modality: Prophylactic vaccines

- CMV vaccine
- Chikungunya antibody

**Exploratory**
- Personalized cancer vaccine
- OX40L/IL-23/IL-36γ (triplet)
- VEGF-A (no LNP)

**Technology risk**
- Cancer vaccines
- Intratumoral immuno-oncology
- Localized regenerative therapeutics
- Systemic intracellular therapeutics
Modernar's vaccine franchise

CMV Phase 2 trial enrolling briskly; announcing three new development candidates

Safety
>1,000 healthy volunteers enrolled in nine Phase 1 vaccine trials (dose levels up to 400µg); emerging safety & tolerability profile consistent with marketed adjuvanted vaccines

Immunogenicity
In clinical trials, we have observed an ability to elicit neutralizing antibodies to viral antigens from six of our prophylactic vaccine programs

Clinical updates
- **CMV (mRNA-1647):** Phase 2 dose confirmation is ongoing; Two of three dose cohorts enrolled, third and final dose cohort >85% enrolled; data readout expected 3Q20 (vs.2H20)
- **hMPV/PIV3 (mRNA-1653):** Phase 1b age de-escalation study ongoing
- **RSV (mRNA-1172/V172):** Phase 1 study led by Merck is ongoing
- **Zika virus (mRNA-1893):** Three of four dose cohorts in the Phase 1 study enrolled

New development candidates announced in February
- Pediatric RSV (mRNA-1345)
- EBV (mRNA-1189)
- SARS-CoV-2 (mRNA-1273)

1The most common adverse reactions in Moderna’s Phase 1 clinical trials in Prophylactic Vaccines include injection site pain, headache, myalgia, and fatigue
2Only mRNA-1325, our initial Zika vaccine, did not elicit desired pharmacology
Congenital cytomegalovirus (CMV) overview

- CMV is a common infection and is the leading cause of birth defects in the U.S.
  - 0.65% of U.S. newborns infected annually (~25,000 U.S. 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**

<table>
<thead>
<tr>
<th>Neonatal period</th>
<th>Infancy, childhood, adulthood</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Jaundice</td>
<td>• Deafness/hearing loss</td>
</tr>
<tr>
<td>• Microcephaly</td>
<td>• Neurodevelopmental delay</td>
</tr>
<tr>
<td>• Hearing loss</td>
<td>• Seizures</td>
</tr>
<tr>
<td>• Vision loss</td>
<td></td>
</tr>
<tr>
<td>• Seizures</td>
<td></td>
</tr>
<tr>
<td>• Low birth weight</td>
<td></td>
</tr>
</tbody>
</table>

*Moderna product concept: A gB and pentamer mRNA vaccine to prevent 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 1.3-fold to 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 approximately 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.
Late stage clinical development for CMV vaccine (mRNA-1647)

### Phase 2 dose confirmation study
- 3 dose levels; randomized, observer-blind, placebo-controlled, multicenter
- 252 seronegative & seropositive adults
- Utilizes intended Phase 3 formulation; same lipid nanoparticle (LNP) used in Phase 1
- Phase 2 study enrolling ahead of plan; two of three dose cohorts enrolled, final dose cohort >85% enrolled
- **First interim analysis**: safety and immunogenicity data through 1 month after second vaccination, anticipated in 3Q20 (previously 2H20)

### Planned 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; RFP sent to CROs
- Expect <8,000 participants
- Preparation and product manufacturing underway
- Phase 3 trial in WOCBA: costs currently estimated at $200-250 million

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1Current estimates based on benchmarks; final trial design and costs remain to be determined
CMV is a blockbuster opportunity

- We estimate annual peak sales of $2-5 billion
- Assuming GARDASIL® like average selling price; GM estimated to be >90% (EBIT margins estimated at 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

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.
Epstein-Barr virus (EBV) overview

- **EBV** is a member of the herpesvirus family that includes CMV, is spread through bodily fluids (e.g., saliva) and contracted primarily by young children and adolescents.

- **Disease burden:** EBV is a major cause of infectious mononucleosis (IM) in the U.S., accounting for over 90% of the ~1+ million cases annually.
  - IM can debilitate patients for weeks to months, can lead to hospitalization and (rarely) splenic rupture.
  - EBV infection is also associated with certain lymphoproliferative disorders, cancers and autoimmune diseases.
  - IM and EBV infection are associated with increased risk of developing multiple sclerosis (MS).

- **Unmet need:** No approved vaccine.

**EBV infection sequelae**

<table>
<thead>
<tr>
<th>Adolescents and young adults</th>
<th>Infectious Mononucleosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sore throat</td>
<td>• Fever</td>
</tr>
<tr>
<td>• Lymphadenopathy</td>
<td>• Body aches</td>
</tr>
<tr>
<td>• Fatigue</td>
<td></td>
</tr>
</tbody>
</table>

**Lifetime associated risks**

- Increased risk of developing cancer and multiple sclerosis.

**Moderna product concept:** Develop a multi-antigen vaccine to prevent IM and EBV infection, with long-term potential to impact EBV-associated diseases.
EBV vaccine (mRNA-1189) is designed to provide broad protection

Encodes for five glycoproteins to inhibit both mechanisms for viral entry

- EBV has multiple surface (envelope) glycoproteins that mediate virus entry in different cell types\(^1\)
  - gp350 and gp42/gH/gL complex primarily mediate B cell infection
  - gH/gL complex primarily mediate epithelial cell infection
  - gB drives viral fusion for all cell types

- Vaccination with *only* gp350 (partial B cell protection) reduced the rate of IM by 78% in a clinical trial, but did not prevent infection\(^2\)

- We estimate worldwide direct costs of EBV-linked IM to reach $500 million annually and indirect costs to exceed $1 billion

- Prevention of EBV infection – in addition to prevention of IM – could encourage broader adoption and upside\(^3\)

- Impact on EBV-associated diseases, such as increased risk of some cancers and multiple sclerosis, would be a long-term potential upside but are not part of the current clinical development plan\(^4\)

---

4. Semin Neurol 2016; 36(02): 103-114
Pediatric respiratory syncytial virus (RSV) overview

- RSV is the leading cause of unaddressed severe lower respiratory tract disease and hospitalization in infants and young children worldwide
- **Disease burden:** Major cause of hospitalization due to respiratory infection
  - Hospitalization rate in children <5 years old in the U.S.: ~3:1000¹
  - Annually over 2 million medically attended RSV infections in children <5 years old in the U.S., more than 86,000 are hospitalized
  - Globally it is estimated over ~33 million episodes of acute lower-respiratory tract infection, 3.2 million hospitalizations and as many as 118,000 deaths per year
  - We estimate pediatric RSV results in ~$2 billion in annual medical costs in the U.S.
- **Target population:** Young children
- **Unmet need:** No approved RSV vaccine

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Pediatric RSV vaccine (mRNA-1345)

- mRNA-1345 encodes for a stabilized prefusion F glycoprotein

- mRNA-1345 will use the same LNP as our hMPV/PIV3 (mRNA-1653) and CMV (mRNA-1647) vaccines

- We believe that neutralizing antibodies elicited by mRNA-1345 will lead to the reduction of medically attended RSV disease in young children (< 5 yrs)

- Intend to combine mRNA-1345 with mRNA-1653, our vaccine against hMPV and PIV3, to create a pediatric respiratory combination vaccine

- Current plan is to develop mRNA-1345 and mRNA-1653 independently through initial clinical studies and then combine prior to registration

<table>
<thead>
<tr>
<th>RSV</th>
<th>hMPV</th>
<th>PIV3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory syncytial virus</td>
<td>Human metapneumovirus</td>
<td>Parainfluenza virus type 3</td>
</tr>
<tr>
<td>Hospitalization rate in children &lt; 5 years old in the U.S.: ~3:1000&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Hospitalization rate in children &lt; 5 years old in the U.S.: ~1.2:1000&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Hospitalization rate in children &lt; 5 years old in the U.S.: ~0.5:1000&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

In the aggregate, three diseases cause over 3 million medically attended infections annually in the US.
mRNA vaccine (mRNA-1273) against SARS-CoV-2

- mRNA-1273 is an mRNA vaccine against SARS-CoV-2 encoding for a prefusion stabilized form of the Spike (S) protein of the novel coronavirus, which was selected by Moderna in collaboration with investigators at the National Institute of Allergy and Infectious Diseases (NIAID) Vaccine Research Center (VRC), a part of the National Institutes of Health (NIH)

- First clinical batch for Phase 1, including fill and finishing of vials, was completed on February 7; Batch has been shipped to the NIAID for the Phase 1 study

- NIAID will conduct the Phase 1 clinical study under their IND
Chikungunya antibody data supports systemic secreted & cell surface therapeutics modality

**Core**
- CMV vaccine
- Chikungunya antibody

**Exploratory**
- Personalized cancer vaccine
- OX40L/IL-23/IL-36y (triplet)
- VEGF-A (no LNP)
- KRAS cancer vaccine
- OX40L

**Technology risk**
- Cancer vaccines
- Intratumoral immuno-oncology
- Localized regenerative therapeutics
- Systemic intracellular therapeutics

**Biology risk**
- Prophylactic vaccines
- Systemic secreted & cell surface therapeutics
IL-2 (mRNA-6231) – long acting tolerizing IL-2

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
- In preclinical studies, administration of mRNA-6231 showed a 12-fold expansion of T regulatory cells without significant increase above baseline of activated CD8+ T cells, indicating preferential targeting
- 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.

- mRNA-6981 employs intravenous administration of the same LNP as our mRNA-encoded antibody, mRNA-1944.

- In a preclinical disease model of collagen induced arthritis, we observed consistently less severe disease in animals treated with mRNA-6981 compared to PBS. A result similar to active control with dexamethasone.

- First indication intended to be autoimmune hepatitis, a compelling unmet need.
Exploratory modalities are a critical part of our strategy to maximize applications of our mRNA medicines.

### Core
- CMV vaccine
- Chikungunya antibody

### Exploratory

- **Technology risk**
  - Cancer vaccines
  - Intratumoral immuno-oncology
  - Localized regenerative therapeutics
  - Systemic intracellular therapeutics

- **Biology risk**
  - Personalized cancer vaccine
  - OX40L/IL-23/IL-36γ (triplet)
  - VEGF-A (no LNP)
  - KRAS cancer vaccine
  - OX40L

**Legend**
- Prophylactic vaccines
- Systemic secreted & cell surface therapeutics
Sentinel clinical program updates

**Evaluation in patients**

- Cancer vaccines

**Clinical trial updates**

PCV (mRNA-4157) – Randomized Phase 2 in combination with KEYTRUDA® vs. KEYTRUDA® alone, led by Merck, is ongoing

KRAS (mRNA-5671) – Phase 1 as a monotherapy and in combination with KEYTRUDA®, led by Merck, is ongoing

**Intratumoral immuno-oncology**

- OX40L (mRNA-2416) – Phase 1 dose escalation cohort in combination with durvalumab is ongoing
- OX40L-IL23-IL36y (mRNA-2752) – Phase 1 as a monotherapy and in combination with durvalumab is ongoing
- IL-12 (MEDI1191) – Phase 1 study alone and in combo w/ durvalumab in patients is ongoing

**Localized regenerative therapeutics**

- VEGF (AZD8601) – Phase 2a study for VEGF-A for ischemic heart disease, led by AstraZeneca, is ongoing

**Systemic intracellular therapeutics**

- MMA (mRNA-3704) – First patient enrolled in Phase 1/2 study of methylmalonic acidemia
- PA (mRNA-3927) – Study start-up in the US is ongoing for the Phase 1/2 study in propionic acidemia
## Development pipeline
(As of February 26th, 2020)

<table>
<thead>
<tr>
<th>Preclinical (incl. Open IND)</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prophylactic vaccines</td>
<td>EBV</td>
<td>Adult RSV (mRNA-1172)</td>
<td>CMV</td>
</tr>
<tr>
<td></td>
<td>SARS-CoV-2</td>
<td>Zika</td>
<td></td>
</tr>
<tr>
<td>Systemic secreted &amp; cell surface therapeutics</td>
<td>Pediatric RSV (mRNA-1340)</td>
<td>hMPV/PIV3</td>
<td>H7N9</td>
</tr>
<tr>
<td></td>
<td>Relaxin</td>
<td>PD-L1</td>
<td>Chikungunya Antibody</td>
</tr>
<tr>
<td></td>
<td>Fabry</td>
<td>IL-2</td>
<td>Personalized Cancer Vax</td>
</tr>
<tr>
<td>Cancer vaccines</td>
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<td>KRAS</td>
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<tr>
<td>Intratumoral immuno-oncology</td>
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<td>OX40L/IL-23/IL-36γ</td>
<td>VEGF</td>
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<tr>
<td></td>
<td>OX40L</td>
<td>IL-12</td>
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</tr>
<tr>
<td>Localized regenerative therapeutics</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>PA (open IND)</td>
<td>GSD1a</td>
<td>MMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PKU</td>
<td></td>
</tr>
<tr>
<td>Systemic intracellular therapeutics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phase 3 preparations: CMV
# 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
- **Pediatric RSV** – IND filing
- **EBV** – IND filing
- **SARS-CoV-2** – Start of Phase 1 by NIH

## 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** – Phase 1/2 safety and proof of concept biomarker readout
- **PA** – Phase 1/2 study start
- **PKU** – IND filing
- **GSD1a** – IND filing
## 2019 fourth quarter and full year financial results (Unaudited)

### Balance Sheets

<table>
<thead>
<tr>
<th></th>
<th>December 31, 2019</th>
<th>December 31, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash, cash equivalents and investments ¹</td>
<td>$1.26 billion</td>
<td>$1.69 billion</td>
</tr>
</tbody>
</table>

### Statements of Cash Flows

<table>
<thead>
<tr>
<th></th>
<th>Year ended Dec. 31, 2019</th>
<th>Year ended Dec. 31, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cash used in operating activities ²</td>
<td>$459 mm</td>
<td>$331 mm</td>
</tr>
<tr>
<td>Cash used for purchases of property and equipment ³</td>
<td>$32 mm</td>
<td>$106 mm</td>
</tr>
<tr>
<td>Total</td>
<td>$491 mm</td>
<td>$437 mm</td>
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</table>

### Statements of Operations

<table>
<thead>
<tr>
<th></th>
<th>3 months ended Dec. 31, 2019</th>
<th>3 months ended Dec. 31, 2018</th>
<th>Year ended Dec. 31, 2019</th>
<th>Year ended Dec. 31, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue</td>
<td>$14 mm</td>
<td>$35 mm</td>
<td>$60 mm</td>
<td>$135 mm</td>
</tr>
<tr>
<td>Research and development expenses</td>
<td>$119 mm</td>
<td>$150 mm</td>
<td>$496 mm</td>
<td>$454 mm</td>
</tr>
<tr>
<td>General and administrative expenses</td>
<td>$26 mm</td>
<td>$38 mm</td>
<td>$110 mm</td>
<td>$94 mm</td>
</tr>
<tr>
<td>Total operating expenses</td>
<td>$145 mm</td>
<td>$188 mm</td>
<td>$606 mm</td>
<td>$548 mm</td>
</tr>
<tr>
<td>Net loss</td>
<td>$(124) mm</td>
<td>$(141) mm</td>
<td>$(514) mm</td>
<td>$(385) mm</td>
</tr>
</tbody>
</table>

¹. Excludes restricted cash of $12 mm at December 31, 2019 and December 31, 2018.

². Includes $22 mm and $25 mm in the first quarter of 2019 and 2018, respectively, of in-licensing payments to Cellscript, LLC and its affiliate, mRNA RiboTherapeutics, Inc. to sublicense certain patent rights. After the first quarter of 2019, we have no further in-licensing payment obligations under the Cellscript-MRT Agreements.

³. Includes $15 mm in 2019 and $95 mm in 2018 related to our Moderna Technology Center manufacturing facility.
2019 selected cash flow information and 2020 guidance

2019 Selected Cash Flow Information (unaudited)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cash used in operating activities</td>
<td>$144 mm</td>
<td>$256 mm</td>
<td>$363 mm</td>
<td>$459 mm</td>
</tr>
<tr>
<td>Cash used for purchases of property and equipment</td>
<td>$8 mm</td>
<td>$18 mm</td>
<td>$25 mm</td>
<td>$32 mm</td>
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<tr>
<td>Total</td>
<td>$152 mm</td>
<td>$274 mm</td>
<td>$388 mm</td>
<td>$491 mm</td>
</tr>
</tbody>
</table>

Change in net cash used in operating activities and for purchases of property and equipment

We expect net cash used in operating activities and for purchases of property and equipment to total $490 million to $510 million in 2020.
We have up to $2 billion to invest and create value

**Cash Position (unaudited)**

Approximately **$1.26 billion** of cash and investments\(^1\) at the end of 2019

**February Financing**

Net proceeds of approximately **$550 million** from our recent financing in February 2020, inclusive of the exercised option to purchase additional shares

**Grants\(^2\)**

Total additional funding available from grants is approximately **$185 million** (including amounts not committed)

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1. Cash and investments denotes cash, cash equivalents and investments
2. Funding from Biomedical Advanced Research and Development Authority (BARDA): Zika vaccine; Defense Advanced Research Projects Agency (DARPA): Chikungunya antibody; The Bill and Melinda Gates Foundation (BMGF): HIV; and the Coalition for Epidemic Preparedness Innovations (CEPI): SARS-CoV-2. Additional funding is subject to agreement on scope of additional projects.
## Moderna in February 2020

<table>
<thead>
<tr>
<th>Pipeline</th>
<th>Programs in development</th>
<th>Foundations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preparing for Ph 3</td>
<td>1,700</td>
</tr>
<tr>
<td>4</td>
<td>In or preparing for Ph 2</td>
<td>800</td>
</tr>
<tr>
<td>11</td>
<td>Ph 1 trials ongoing</td>
<td>200,000 sq. ft.</td>
</tr>
<tr>
<td>10</td>
<td>Positive Ph 1 readouts: 6 vaccines, PCV, OX40L, VEGF, anti-Chikungunya antibody</td>
<td>Leading biopharma partners</td>
</tr>
</tbody>
</table>

### Programs in development

#### 7 Vaccines for major unmet needs
- CMV in Ph 2; Ph 3 preparation
- hMPV/PIV3 – started Ph 1b age de-escalation study
- RSV and Zika in Ph 1
- Pediatric RSV, EBV – in preclinical
- SARS-CoV-2 – Start of Ph 1 by NIH

#### 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 first patient enrolled
- PA – Open IND
- PKU, Fabry & GSD1a in preclinical

#### 2 Autoimmune disease
- IL-2 and PD-L1 – in preclinical

### Foundations

- Healthy volunteers and patients enrolled: 1,700
- Employees: 800
- GMP site operational in Norwood, MA

### Up to $2 bn of cash and potential grants to invest and create value*
Moderna priorities for 2020

1. Execute on the development pipeline
   • Execution of CMV Phase 2 and preparation for CMV Phase 3

2. New development candidates in core modalities
   • Infectious disease vaccines
   • Systemic secreted and cell surface therapeutics

3. New development candidates in new modalities
Save the Date – Events in 2020

Manufacturing and Digital Day
March 4th in Norwood, MA
(Moderna’s Manufacturing Facility)

Vaccines Day
April 14th in New York City

Science Day
June 2nd in New York City

R&D Day
September 17th in New York City
Exciting new phase of growth for Moderna

- Develop mRNA science, delivery technology and manufacturing
- Explore mRNA technology across six different modalities
- Build Core modalities: Investigate current and create new Exploratory modalities
- Scale for commercial growth

**Stage of development**
- Scientific foundation
- First-in-human (Dec. 2015)
- Clinical data
- First Core Modality (4Q19)
- Accelerated pipeline
- First BLA(s)
- Commercial growth
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
Our Mission
To deliver on the promise of mRNA science to create a new generation of transformative medicines for patients.