UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended March 31, 2025

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _ to _
Commission File Number: 001-38753

Moderna, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**81-3467528**
(State or Other Jurisdiction of Incorporation or Organization)	(IRS Employer Identification No.)
325 Binney Street	
Cambridge, Massachusetts	**02142**
(Address of Principal Executive Offices)	(Zip Code)

(617) 714-6500
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common stock, par value $0.0001 per share	MRNA	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. **Yes** ☒ **No** ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). **Yes** ☒ **No** ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐	Non-accelerated filer	☐	Smaller reporting company	☐
						Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). **Yes** ☐ **No** ☒

As of April 25, 2025, there were 386,741,820 shares of the registrant's common stock, par value $0.0001 per share, outstanding.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q (Form 10-Q) contains express or implied forward-looking statements. All statements other than those of historical facts contained in this Form 10-Q are based on our management's beliefs and assumptions and on information currently available to our management. Forward-looking statements in this Form 10-Q include, but are not limited to, statements about:

- our ability to drive use of Spikevax and mRESVIA and to increase market share;
- our ability to execute on our prioritized research and development portfolio;
- our ability to deliver cost efficiency across our business;
- our expectations regarding the size and durability of the commercial COVID and RSV vaccines markets and our ability to effectively compete in such markets, as well as the impact that evolving markets will have on our financial returns;
- expected sales and delivery of our vaccine products in future periods, and expected seasonality for sales;
- anticipated near-term regulatory actions with respect to product candidates in our respiratory virus vaccines portfolio, including potential approvals;
- our ability to obtain and maintain regulatory approval of our product candidates across our portfolio;
- our ability to successfully launch and commercialize our products and the timing of launches;
- the potential of our oncology portfolio and our ability to expand to additional tumor types;
- our ability and the ability of third parties with whom we contract to successfully manufacture, supply and distribute our COVID or RSV vaccines and any future commercial products at scale, as well as drug substances, delivery vehicles, development candidates, and investigational medicines for preclinical and clinical use;
- financing and funding options we may consider as part of our research and development strategy;
- our ability to successfully contract with third-party suppliers, distributors and manufacturers;
- internal and external costs associated with manufacturing our products, including our COVID or RSV vaccines, and the impact on our cost of sales, and our anticipated cost of sales as a percentage of net product sales;
- the scope of protection we are able to establish and maintain for intellectual property rights, including those covering our commercial products, product candidates and technology, and our expectations regarding pending legal proceedings related to our intellectual property;
- the timing of initiation, progress, completion, results and cost of our clinical trials, preclinical studies and research and development programs, as well as those of our collaborators;
- participant enrollment in our clinical trials, including enrollment demographics and timing;
- potential advantages of mRNA as compared to traditional medicine;
- the implementation of our business model and strategic plans for our business, products, product candidates and technology;
- the pricing and reimbursement of our products, if approved;
- the build out of our manufacturing and commercial operations;
- estimates of our future expenses, revenues and capital requirements;
- our operation and funding requirements, including our forecast of the period of time through which our financial resources will be adequate to support our operations;

- the potential benefits of strategic collaboration agreements and our ability to enter into strategic collaborations or other agreements with collaborators with development, regulatory and commercialization expertise;
- our financial performance;
- our tax positions and related tax liabilities;
- legal and regulatory developments in the United States and foreign countries;
- our ability to produce our products or product candidates with advantages in turnaround times or manufacturing cost; and
- developments relating to our competitors and our industry.

Forward-looking statements often contain words 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. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our operational or financial performance, and involve risks, uncertainties, and other factors that may cause our actual results to differ materially from any future results expressed or implied by these forward-looking statements. Accordingly, you should not place undue reliance on these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section entitled “Risk Factors” and elsewhere in this Form 10-Q and under Part I, Item 1A. “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual results could differ materially from those expressed or implied by the forward-looking statements.

The forward-looking statements in this Form 10-Q represent our views as of the date of this Form 10-Q. We undertake no obligation to update any forward-looking statements, except as required by applicable securities law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Form 10-Q. However, any further disclosures made on related subjects in our subsequent reports filed with the Securities and Exchange Commission should be consulted.

TRADEMARKS

This Form 10-Q contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to may appear without the ® or ™ symbols, but such references are not intended to indicate that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our reference to other companies’ trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

NOTE REGARDING COMPANY REFERENCES

Unless the context otherwise requires, the terms “Moderna,” the “Company,” “we,” “us” and “our” in this Form 10-Q refer to Moderna, Inc. and its consolidated subsidiaries.

ADDITIONAL INFORMATION

Our website, www.modernatx.com, including the Investor Relations section, www.investors.modernatx.com; and corporate blog www.modernatx.com/moderna-blog, and our Statements and Perspectives webpage, https://investors.modernatx.com/Statements--Perspectives/default.aspx; as well as our social media channels: Facebook, www.facebook.com/modernatx; X, www.x.com/moderna_tx (@moderna_tx); LinkedIn, www.linkedin.com/company/modernatx; Instagram (@moderna_tx); and Threads (@moderna_tx) contain a significant amount of information about us, including financial and other information for investors. We encourage investors to visit these websites and social media channels as information is frequently updated and new information is shared. Information contained on our website, corporate blog and social media channels shall not be deemed incorporated into, or be a part of, this Form 10-Q.

Table of Contents

Item 1. Financial Statements

MODERNA, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited, in millions, except per share data)

	March 31, 2025	December 31, 2024
Assets		
Current assets:		
Cash and cash equivalents	$ 1,623	$ 1,927
Investments	4,352	5,098
Accounts receivable, net	78	358
Inventory	128	117
Prepaid expenses and other current assets	585	599
Total current assets	6,766	8,099
Investments, non-current	2,418	2,494
Property, plant and equipment, net	2,212	2,196
Right-of-use assets, operating leases	752	759
Other non-current assets	556	594
Total assets	$ 12,704	$ 14,142
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 226	$ 405
Accrued liabilities	1,001	1,427
Deferred revenue	125	153
Other current liabilities	252	221
Total current liabilities	1,604	2,206
Deferred revenue, non-current	58	58
Operating lease liabilities, non-current	667	671
Financing lease liabilities, non-current	35	39
Other non-current liabilities	274	267
Total liabilities	2,638	3,241
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, par value $0.0001; 162 shares authorized as of March 31, 2025 and December 31, 2024; no shares issued or outstanding at March 31, 2025 and December 31, 2024	—	—
Common stock, par value $0.0001; 1,600 shares authorized as of March 31, 2025 and December 31, 2024; 387 and 386 shares issued and outstanding as of March 31, 2025 and December 31, 2024, respectively	—	—
Additional paid-in capital	982	866
Accumulated other comprehensive income (loss)	10	(10)
Retained earnings	9,074	10,045
Total stockholders' equity	10,066	10,901
Total liabilities and stockholders' equity	$ 12,704	$ 14,142

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

MODERNA, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited, in millions, except per share data)

	Three Months Ended March 31,	
	2025	**2024**
Revenue:		
Net product sales	$ 86	$ 167
Other revenue	22	—
Total revenue	108	167
Operating expenses:		
Cost of sales	90	96
Research and development	856	1,063
Selling, general and administrative	212	274
Total operating expenses	1,158	1,433
Loss from operations	(1,050)	(1,266)
Interest income	90	120
Other expense, net	(4)	(19)
Loss before income taxes	(964)	(1,165)
Provision for income taxes	7	10
Net loss	$ (971)	$ (1,175)
Net loss per share		
Basic and diluted	$ (2.52)	$ (3.07)
Weighted average common shares used in calculation of net loss per share		
Basic and diluted	386	382

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

MODERNA, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited, in millions)

	Three Months Ended March 31,	
	2025	2024
Net loss	$ (971)	$ (1,175)
Other comprehensive income, net of tax:		
Available-for-sale securities:		
Unrealized gains on available-for-sale securities	16	20
Less: net realized (gains) losses on available-for-sale securities reclassified in net loss	(1)	2
Net increase from available-for-sale securities	15	22
Pension and postretirement obligation adjustments	2	—
Gains on foreign currency translation	3	—
Total other comprehensive income	20	22
Comprehensive loss	$ (951)	$ (1,153)

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

MODERNA, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited, in millions)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2024	386	$ —	$ 866	$ (10)	$ 10,045	$ 10,901
Vesting of restricted common stock units	1	—	—	—	—	—
Exercise of options to purchase common stock	—	—	2	—	—	2
Tax payments related to net share settlements on equity awards	—	—	(1)	—	—	(1)
Stock-based compensation	—	—	115	—	—	115
Other comprehensive income, net of tax	—	—	—	20	—	20
Net loss	—	—	—	—	(971)	(971)
Balance at March 31, 2025	387	$ —	$ 982	$ 10	$ 9,074	$ 10,066

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Retained Earnings	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2023	382	$ —	$ 371	$ (123)	$ 13,606	$ 13,854
Exercise of options to purchase common stock	1	—	15	—	—	15
Stock-based compensation	—	—	101	—	—	101
Other comprehensive income, net of tax	—	—	—	22	—	22
Net loss	—	—	—	—	(1,175)	(1,175)
Balance at March 31, 2024	383	$ —	$ 487	$ (101)	$ 12,431	$ 12,817

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

MODERNA, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, in millions)

	Three Months Ended March 31,	
	2025	**2024**
Operating activities		
Net loss	$ (971)	$ (1,175)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	115	101
Depreciation and amortization	39	36
Amortization/accretion of investments	(19)	(27)
Loss on equity investments, net	8	13
Other non-cash items	2	3
Changes in assets and liabilities:		
Accounts receivable, net	280	755
Prepaid expenses and other assets	46	3
Inventory	(8)	(93)
Right-of-use assets, operating leases	9	16
Accounts payable	(156)	(303)
Accrued liabilities	(381)	(398)
Deferred revenue	(29)	(33)
Operating lease liabilities	(5)	(6)
Other liabilities	33	119
Net cash used in operating activities	(1,037)	(989)
Investing activities		
Purchases of marketable securities	(1,764)	(2,544)
Proceeds from maturities of marketable securities	1,933	1,573
Proceeds from sales of marketable securities	688	1,285
Purchases of property, plant and equipment	(117)	(196)
Purchase of intangible asset	(10)	—
Net cash provided by investing activities	730	118
Financing activities		
Proceeds from issuance of common stock through equity plans	3	15
Tax payments related to net share settlements on equity awards	(1)	—
Changes in financing lease liabilities	2	(1)
Net cash provided by financing activities	4	14
Net decrease in cash, cash equivalents and restricted cash	(303)	(857)
Cash, cash equivalents and restricted cash, beginning of year	1,929	2,928
Cash, cash equivalents and restricted cash, end of period	$ 1,626	$ 2,071
Non-cash investing and financing activities		
Purchases of property and equipment included in accounts payable and accrued liabilities	$ 50	$ 91

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

MODERNA, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Description of the Business

Moderna, Inc. (collectively, with its consolidated subsidiaries, any of Moderna, we, us, our or the Company) is a biotechnology company advancing a new class of medicines made of messenger RNA (mRNA). mRNA medicines are designed to direct the body's cells to produce intracellular, membrane or secreted proteins that have a therapeutic or preventive benefit with the potential to address a broad spectrum of diseases. Our platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, providing us the capability to pursue in parallel a robust pipeline of new development candidates. We are developing medicines across four franchises: respiratory virus vaccines, latent and other virus vaccines, oncology therapeutics and rare disease therapeutics.

Our approved COVID vaccine (mRNA-1273) is our first commercial product and is marketed under the name Spikevax®. mRNA-1273 was first developed to target the SARS-CoV-2 ancestral strain, and we have leveraged our mRNA platform to rapidly adapt our vaccine to emerging SARS-CoV-2 strains to provide protection as the virus evolves and regulatory guidance is updated. In May 2024, the U.S. Food and Drug Administration (FDA) approved mRESVIA® (mRNA-1345), our mRNA respiratory syncytial virus (RSV) vaccine, to protect adults aged 60 years and older from lower respiratory tract disease caused by RSV infection. This marks our second approved product developed using our mRNA platform.

We have a diverse and extensive development pipeline of 31 development candidates across our 41 development programs, of which 38 are in clinical studies currently.

2. Summary of Basis of Presentation and Recent Accounting Standards

Basis of Presentation and Principles of Consolidation

The accompanying unaudited condensed consolidated financial statements that accompany these notes have been prepared in accordance with U.S. generally accepted accounting principles (GAAP) and applicable rules and regulations of the Securities and Exchange Commission (SEC) for interim financial reporting, consistent in all material respects with those applied in our Annual Report on Form 10-K for the year ended December 31, 2024 (2024 Form 10-K). Any reference in these notes to applicable guidance is meant to refer to the authoritative accounting principles generally accepted in the United States as found in the Accounting Standards Codification (ASC) and Accounting Standards Update (ASU) of the Financial Accounting Standards Board (FASB). This report should be read in conjunction with the audited consolidated financial statements in our 2024 Form 10-K.

The condensed consolidated financial statements include Moderna, Inc. and its subsidiaries. All intercompany transactions and balances have been eliminated in consolidation. Except for (1) the revision to the estimated useful lives of certain manufacturing equipment (refer to "Use of Estimates" below), and (2) updates to our approach for estimating the expected term of stock options and the removal of peer company data in determining expected volatility for stock-based compensation (refer to Note 12), the significant accounting policies used in the preparation of these condensed consolidated financial statements for the three months ended March 31, 2025 are consistent with those described in our 2024 Form 10-K. The results of operations for the three months ended March 31, 2025 are not necessarily indicative of the operating results to be expected for the full fiscal year or future operating periods. We anticipate seasonal fluctuations in demand for our COVID and RSV vaccines, with higher sales expected during the fall and winter seasons.

Use of Estimates

We have made estimates and judgments affecting the amounts reported in our condensed consolidated financial statements and the accompanying notes. We base our estimates on historical experience and various relevant assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods that are not readily apparent from other sources. Changes in our estimates are recorded in the financial results of the period in which the new information becomes available. The actual results that we experience may differ materially from our estimates.

Effective January 1, 2025, we revised the estimated useful life of certain manufacturing equipment from five years to a range of five to twelve years. This change followed an assessment completed in connection with the expansion of our internal manufacturing capabilities and reflects the expected economic utility of the equipment. The change was accounted for prospectively, with carrying values depreciated over their revised remaining useful lives. As a result, depreciation expense and net loss for the three months ended March 31, 2025 decreased by an immaterial amount.

Comprehensive Income (Loss)

Comprehensive income (loss) includes net income (loss) and other comprehensive income/loss for the period. Other comprehensive income/loss consists of unrealized gains/losses on our investments, derivatives designated as hedging instruments, foreign currency translation, and pension and postretirement obligation adjustments. Total comprehensive income (loss) for all periods presented has been disclosed in the condensed consolidated statements of comprehensive loss.

The components of accumulated other comprehensive income (loss) for the three months ended March 31, 2025 were as follows (in millions):

	Unrealized Gains on Available-for-Sale Debt Securities	Pension and Postretirement Obligation Adjustments	Losses on Foreign Currency Translation	Total
Accumulated other comprehensive loss, balance at December 31, 2024	$ 10	$ (12)	$ (8)	$ (10)
Other comprehensive income	15	2	3	20
Accumulated other comprehensive income, balance at March 31, 2025	$ 25	$ (10)	$ (5)	$ 10

Restricted Cash

We include our restricted cash balance in the cash, cash equivalents and restricted cash reconciliation of operating, investing and financing activities in the condensed consolidated statements of cash flows.

The following table provides a reconciliation of cash, cash equivalents and restricted cash in the condensed consolidated balance sheets that sum to the total of the same such amounts shown in the condensed consolidated statements of cash flows (in millions):

	March 31,	
	2025	2024
Cash and cash equivalents	$ 1,623	$ 2,051
Restricted cash[(1)]	1	17
Restricted cash, non-current[(2)]	2	3
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 1,626	$ 2,071

[(1)]Included in prepaid expenses and other current assets in the condensed consolidated balance sheets.

[(2)]Included in other non-current assets in the condensed consolidated balance sheets.

Recently Issued Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by us as of the specified effective date. Except as noted below, we believe that the impact of recently issued standards that are not yet effective will not have a material impact on our condensed consolidated financial statements and disclosures.

In December 2023, the FASB issued ASU No. 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures. This ASU requires disaggregated information about a reporting entity's effective tax rate reconciliation as well as additional information on income taxes paid. The standard requires entities to disclose federal, state, and foreign income taxes in their rate reconciliation tables and elaborate on reconciling items that exceed a quantitative threshold. Additionally, it requires an annual disclosure of income taxes paid, net of refunds, categorized by jurisdiction based on a quantitative threshold. The ASU is effective on a prospective basis for fiscal years beginning after December 15, 2024. Early adoption is permitted. This ASU will result in the required additional disclosures being included in our consolidated financial statements, once adopted. We are currently assessing the impact that this new accounting standard will have on our consolidated financial statement disclosures.

In November 2024, the FASB issued ASU 2024-03, Income Statement - Reporting Comprehensive Income - Expense Disaggregation Disclosures (Subtopic 220-40): Disaggregation of Income Statement Expenses. This ASU requires entities to disclose, on an annual and interim basis, disaggregated information in the footnotes related to certain expense categories included in income statement line items. Specifically, entities are expected to provide tabular disclosures for prescribed categories such as inventory purchases, employee compensation, depreciation, and intangible asset amortization for each relevant expense caption. The standard also requires disclosure of total selling expenses and a definition of those expenses in annual filings. Any remaining amounts not quantitatively disclosed are expected to be described qualitatively. This ASU is effective for fiscal years beginning after December 15, 2026 and interim periods beginning after December 15, 2027. Early adoption permitted, and the standard may be applied on a prospective or retrospective basis. We are currently assessing the impact that this new accounting standard will have on our consolidated financial statement disclosures.

3. Net Product Sales

Net product sales by customer geographic location were as follows (in millions):

	Three Months Ended March 31,	
	2025	**2024**
United States	$ 31	$ 100
Europe	—	—
Rest of world	55	67
Total	$ 86	$ 167

Net product sales by product were as follows (in millions):

	Three Months Ended March 31,	
	2025	**2024**
COVID	$ 84	$ 167
RSV	2	—
Total	$ 86	$ 167

As of March 31, 2025, we have two commercial products authorized for use, our COVID vaccine (mRNA-1273) and our RSV vaccine (mRNA-1345). The RSV vaccine was approved by the FDA in May 2024 for adults aged 60 years and older.

We sell our COVID vaccine to the commercial market as well as to foreign governments and international organizations. We launched commercial sales of our RSV vaccine in the third quarter of 2024. In the U.S., our COVID and RSV vaccines are sold to wholesalers and distributors, and to a lesser extent, directly to retailers and healthcare providers. Wholesalers and distributors typically do not make upfront payments to us. Net product sales are recognized net of estimated wholesaler chargebacks, invoice discounts for prompt payments and pre-orders, provisions for sales returns and government rebates, and other related deductions.

The following table summarizes product sales provision for the periods presented (in millions):

	Three Months Ended March 31,	
	2025	2024
Gross product sales	$ 105	$ 222
Product sales provision:		
Wholesaler chargebacks, discounts and fees	(22)	(22)
Returns, rebates and other fees	3	(33)
Total product sales provision	$ (19)	$ (55)
Net product sales	$ 86	$ 167

The following table summarizes the activities related to product sales provision recorded as accrued liabilities for the three months ended March 31, 2025 (in millions):

	Returns and other fees
Balance at December 31, 2024	$ (370)
Provision related to sales made in current period	(8)
Provision related to sales made in prior periods	11
Payments and returns related to sales made in current period	—
Payments and returns related to sales made in prior year	30
Balance at March 31, 2025	$ (337)

Prior to the launch of our commercial market sales, we sold our COVID vaccine primarily to the U.S. Government, foreign governments and international organizations. The agreements and related amendments with these entities generally do not include variable consideration, such as discounts, rebates or returns. Certain of these agreements entitle us to upfront deposits for our COVID vaccine supply, initially recorded as deferred revenue.

As of March 31, 2025 and December 31, 2024, we had deferred revenue of $154 million and $188 million, respectively, related to customer deposits for our COVID vaccine. We expect $96 million of our deferred revenue related to customer deposits as of March 31, 2025 to be realized in less than one year. Timing of product delivery and manufacturing, and receipt of marketing approval for the applicable COVID vaccine will determine the period in which product sales are recognized.

4. Other Revenue

The following table summarizes other revenue for the periods presented (in millions):

	Three Months Ended March 31,	
	2025	2024
Grant revenue	$ 1	$ —
Collaboration revenue (Note 5)	1	—
Licensing and royalty revenue	8	—
Other revenue	12	—
Total other revenue	$ 22	$ —

Grant Revenue

In April 2020, we entered into an agreement with the Biomedical Advanced Research and Development Authority (BARDA), a division of the Administration for Strategic Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS), for an award of up to $483 million to accelerate development of our original COVID vaccine, mRNA-1273. The agreement has been subsequently amended to provide for additional commitments to support various late-stage clinical development efforts of our original COVID vaccine, including a 30,000 participant Phase 3 study, pediatric clinical trials, adolescent clinical trials

and pharmacovigilance studies. The maximum award from BARDA, inclusive of all amendments, was approximately $1.8 billion. All contract options have been exercised. As of March 31, 2025, the remaining available funding, net of revenue earned was $63 million.

In June 2024, we were awarded up to $176 million through the Rapid Response Partnership Vehicle (RRPV), funded by BARDA, to accelerate the development of mRNA-based pandemic influenza vaccines. The project award will support the late-stage development of an mRNA-based vaccine to enable the licensure of a pre-pandemic vaccine against the H5 influenza virus. This subtype of the influenza virus causes a highly infectious and severe disease in birds known as avian influenza and poses a risk of spillover into the human population. The agreement also includes additional options to prepare for and accelerate responses to future public health threats. In January 2025, we were awarded up to $590 million through the RRPV, funded by BARDA, to support the continued late-stage development and licensure of mRNA-based pre-pandemic influenza vaccines, including expanded clinical studies for up to five additional subtypes of pandemic influenza. This funding builds on the scope of the June 2024 funding related to the H5 influenza virus and expands the program to cover additional influenza subtypes. Revenue recognized related to this agreement was immaterial as of March 31, 2025.

Licensing and Royalty Revenue

In April 2024, we entered a non-exclusive out-licensing agreement with a pharmaceutical company based in Japan for mRNA COVID-related intellectual property for the territory of Japan. Under the terms of the agreement, we received an upfront payment of $50 million, which included a $20 million prepayment creditable against future royalties. Additionally, we are entitled to receive low double-digit royalties on the net sales of the company's COVID product. Upon execution of the agreement, we recognized $30 million of the upfront payment as other revenue in our condensed consolidated statements of operations. The remaining $20 million was recorded as deferred revenue in our condensed consolidated balance sheets and recognized as royalty revenue as the underlying sales occurred. As of March 31, 2025, the full $20 million has been amortized and recognized pursuant to the terms of the agreement.

Other Revenue

We have entered into long-term strategic agreements with certain government entities to establish domestic mRNA manufacturing capabilities and support pandemic readiness. Under these agreements, we are required to build and maintain manufacturing facilities and to supply vaccines in accordance with minimum spend commitments or annual demand forecasts established by the respective governments. A portion of the total consideration under each agreement is allocated to a stand-ready obligation to maintain manufacturing readiness and is recognized as other revenue on a straight-line basis over the contractual period. The remaining consideration is related to our obligation to supply vaccines and will be recognized as product sales when control of the vaccines transfers upon delivery.

5. Collaboration Agreements and Research and Development Funding Arrangement

Merck – Personalized mRNA Cancer Vaccines (Individualized Neoantigen Therapy)

In June 2016, we entered into a Collaboration and License Agreement for the development and commercialization of personalized mRNA cancer vaccines (also known as INT) with Merck. This agreement was subsequently amended and restated in 2018. Our role in this strategic alliance involves identifying genetic mutations in a particular patient's tumor cells, synthesizing mRNA for these mutations, encapsulating the mRNA in one of our proprietary lipid nanoparticles (LNPs), and administering a unique mRNA INT to each patient. Each INT is designed to specifically activate the patient's immune system against her or his own cancer cells. INT has recently been assigned the generic name intismeran autogene.

In September 2022, Merck exercised its option for INT, including mRNA-4157, pursuant to the terms of the agreement and in October 2022 paid us an option exercise fee of $250 million. Following this exercise, the Merck Participation Term commenced. Pursuant to the agreement, we and Merck have agreed to collaborate on development and potential commercialization of INT, with costs and any profits or losses generally shared equally on a worldwide basis, subject to certain exceptions as outlined in the agreement. We concluded that the collaboration arrangement under the Merck Participation Term is within the scope of ASC 808. For the three months ended March 31, 2025 and 2024, we recognized expenses, net of Merck's reimbursements, of $104 million and $76 million, respectively, related to the INT collaboration under the Merck Participation Term. Additionally, for the three months ended March 31, 2025 and 2024, the net cost recovery for capital expenditures was $12 million and $24 million, respectively. These amounts were applied to reduce the capitalized cost of the assets.

We have other collaborative and licensing arrangements that we do not consider to be individually significant to our business at this time. Pursuant to these agreements, we may be required to make upfront payments and payments upon achievement of various development, regulatory and commercial milestones, which in the aggregate could be significant. Future milestone payments, if any, will be reflected in our consolidated financial statements when the corresponding events have occurred. In addition, we may be required to pay significant royalties on future sales if products related to these arrangements are commercialized.

Development and Commercialization Funding Arrangement with Blackstone Life Sciences (Blackstone)

In March 2024, we entered into a development and commercialization funding arrangement with Blackstone, under which Blackstone has committed to providing up to $750 million in funding to us. This funding supports the development of our investigational mRNA-based influenza vaccine. Contingent upon regulatory approval in the U.S. and only if the approval is dependent on data from the funded activities, Blackstone will be entitled to receive low single-digit percentage royalties and up to $750 million in sales milestone payments. These payments are based on net sales of our future influenza and combination vaccines, with sales milestone payments contingent upon achieving specified cumulative net sales targets.

Given the substantive transfer of financial risk to Blackstone, we account for this arrangement as an obligation to conduct research and development activities. The funding is recognized as a reduction to the expenses of our mRNA-based influenza program. This reduction is recognized proportionally as the related costs are incurred, based on an input method. For the three months ended March 31, 2025, we recorded a research and development expense reduction of $90 million. No such expense reduction was recorded during the three months ended March 31, 2024. As of March 31, 2025, no research and development funding liability remained related to the advance funding received from Blackstone. The liability was $58 million as of December 31, 2024.

6. Financial Instruments

Cash and Cash Equivalents and Investments

The following tables summarize our cash, cash equivalents, and available-for-sale securities by significant investment category as of March 31, 2025 and December 31, 2024 (in millions):

	March 31, 2025						
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	Cash and Cash Equivalents	Current Marketable Securities	Non-Current Marketable Securities
Cash and cash equivalents	$ 1,623	$ —	$ —	$ 1,623	$ 1,623	$ —	$ —
Available-for-sale:							
Certificates of deposit	102	—	—	102	—	97	5
U.S. treasury bills	731	—	—	731	—	731	—
U.S. treasury notes	2,874	4	(8)	2,870	—	1,712	1,158
Corporate debt securities	2,976	4	(5)	2,975	—	1,732	1,243
Government debt securities	92	—	—	92	—	80	12
Total	$ 8,398	$ 8	$ (13)	$ 8,393	$ 1,623	$ 4,352	$ 2,418

	December 31, 2024						
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	Cash and Cash Equivalents	Current Marketable Securities	Non-Current Marketable Securities
Cash and cash equivalents	$ 1,927	$ —	$ —	$ 1,927	$ 1,927	$ —	$ —
Available-for-sale:							
Certificates of deposit	52	—	—	52	—	52	—
U.S. treasury bills	786	—	—	786	—	786	—
U.S. treasury notes	3,048	3	(15)	3,036	—	1,958	1,078
Corporate debt securities	3,590	3	(13)	3,580	—	2,172	1,408
Government debt securities	138	—	—	138	—	130	8
Total	$ 9,541	$ 6	$ (28)	$ 9,519	$ 1,927	$ 5,098	$ 2,494

The amortized cost and estimated fair value of available-for-sale securities by contractual maturity as of March 31, 2025 and December 31, 2024 were as follows (in millions):

	March 31, 2025	
	Amortized Cost	Estimated Fair Value
Due in one year or less	$ 4,352	$ 4,352
Due after one year through five years	2,423	2,418
Total	$ 6,775	$ 6,770

	December 31, 2024	
	Amortized Cost	Estimated Fair Value
Due in one year or less	$ 5,106	$ 5,098
Due after one year through five years	2,508	2,494
Total	$ 7,614	$ 7,592

In accordance with our investment policy, we place investments in investment grade securities with high credit quality issuers, and generally limit the amount of credit exposure to any one issuer. We evaluate securities for impairment at the end of each reporting period. Impairment is evaluated considering numerous factors, and their relative significance varies depending on the situation.

Factors considered include whether a decline in fair value below the amortized cost basis is due to credit-related factors or non-credit-related factors, the financial condition and near-term prospects of the issuer, and our intent and ability to hold the investment to allow for an anticipated recovery in fair value. Any impairment that is not credit related is recognized in other comprehensive loss, net of applicable taxes. A credit-related impairment is recognized as an allowance on the balance sheet with a corresponding adjustment to earnings. We did not recognize any impairment charges related to available-for-sale securities for the three months ended March 31, 2025 and 2024. We did not record any credit-related allowance for available-for-sale securities as of March 31, 2025 and December 31, 2024.

The following table summarizes the amount of gross unrealized losses and the estimated fair value for our available-for-sale securities in an unrealized loss position by the length of time the securities have been in an unrealized loss position as of March 31, 2025 and December 31, 2024 (in millions):

	Less than 12 Months		12 Months or More		Total	
	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value
As of March 31, 2025:						
U.S. treasury bills	$ —	$ 708	$ —	$ —	$ —	$ 708
U.S. treasury notes	(1)	397	(7)	613	(8)	1,010
Corporate debt securities	(1)	652	(4)	735	(5)	1,387
Government debt securities	—	12	—	8	—	20
Total	$ (2)	$ 1,769	$ (11)	$ 1,356	$ (13)	$ 3,125
As of December 31, 2024:						
U.S. treasury bills	$ —	$ 101	$ —	$ —	$ —	$ 101
U.S. treasury notes	(2)	729	(13)	960	(15)	1,689
Corporate debt securities	(4)	843	(9)	1,646	(13)	2,489
Government debt securities	—	—	—	37	—	37
Total	$ (6)	$ 1,673	$ (22)	$ 2,643	$ (28)	$ 4,316

As of March 31, 2025 and December 31, 2024, we held 180 and 252 available-for-sale securities, respectively, out of our total investment portfolio that were in a continuous unrealized loss position. We neither intend to sell these investments, nor do we believe that we are more-likely-than-not to conclude we will have to sell them before recovery of their carrying values. We also believe that we will be able to collect both principal and interest amounts due to us at maturity.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following fair value hierarchy is used to classify assets and liabilities based on the observable inputs and unobservable inputs used to value the assets and liabilities:

- Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;
- Level 2: Quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability; or
- Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity).

The following tables summarize our financial assets and liabilities measured at fair value on a recurring basis as of March 31, 2025 and December 31, 2024 (in millions):

	Fair value at March 31, 2025	Fair Value Measurement Using	
		Level 1	Level 2
Assets:			
Money market funds	$ 558	$ 558	$ —
Certificates of deposit	102	—	102
U.S. treasury bills	1,174	—	1,174
U.S. treasury notes	2,870	—	2,870
Corporate debt securities	3,367	—	3,367
Government debt securities	92	—	92
Equity investments[1]	6	6	—
Derivative instruments	2	—	2
Total	$ 8,171	$ 564	$ 7,607

There were no financial liabilities measured at fair value as of March 31, 2025.

	Fair value at December 31, 2024	Fair Value Measurement Using	
		Level 1	Level 2
Assets:			
Money market funds	$ 1,195	$ 1,195	$ —
Certificates of deposit	52	—	52
U.S. treasury bills	1,016	—	1,016
U.S. treasury notes	3,036	—	3,036
Corporate debt securities	3,763	—	3,763
Government debt securities	138	—	138
Equity Investments[1]	14	14	—
Derivative instruments	10	—	10
Total	$ 9,224	$ 1,209	$ 8,015
Liabilities:			
Derivative instruments	$ 2	$ —	$ 2

[1] Investments in publicly traded equity securities with readily determinable fair values are recorded at quoted market prices for identical securities, with changes in fair value recorded in other expense, net, in our condensed consolidated statements of operations.

As of March 31, 2025 and December 31, 2024, we did not have non-financial assets or liabilities measured at fair value on a recurring basis and did not have any Level 3 financial assets or financial liabilities.

For the three months ended March 31, 2025 and 2024, we recognized net losses of $8 million and $13 million, respectively, on equity investments from changes in fair value of the securities.

7. Inventory

Inventory as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Raw materials	$ 75	$ 63
Work in progress	39	26
Finished goods	14	28
Total inventory	$ 128	$ 117
Inventory, non-current[(1)]	$ 134	$ 150

[(1)]Consisted of raw materials with an anticipated consumption beyond one year. Inventory, non-current is included in other non-current assets in the condensed consolidated balance sheets.

Inventory write-downs as a result of excess, obsolescence, scrap or other reasons, and losses on firm purchase commitments are recorded as a component of cost of sales in our condensed consolidated statements of operations. For the three months ended March 31, 2025 and 2024, inventory write-downs were $42 million and $30 million, respectively. For the three months ended March 31, 2025, losses on firm purchase commitments were $10 million. For the three months ended March 31, 2024, there were no losses on firm purchase commitments. Inventory write-downs were mainly related to inventory in excess of expected demand and shelf-life expiration. Losses on firm purchase commitments were primarily related to excess raw material purchase commitments that will expire before the anticipated consumption of those raw materials. As of March 31, 2025 and December 31, 2024, the accrued liability for losses on firm future purchase commitments in our condensed consolidated balance sheets was $20 million and $60 million, respectively.

As of March 31, 2025 and December 31, 2024, we had inventory on hand of $262 million and $267 million, respectively, inclusive of inventory for our COVID and RSV vaccines. Our raw materials and work-in-progress inventory have variable shelf lives. We expect that the majority of this inventory will be consumed over the next three years. The shelf life of our COVID vaccine product ranges from nine to twelve months. The shelf life of our RSV vaccine is eighteen months.

8. Property, Plant and Equipment, Net

Property, plant and equipment, net, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Land and land improvements	$ 59	$ 59
Building and building improvements	759	743
Manufacturing and laboratory equipment	361	344
Leasehold improvements	208	207
Furniture, fixtures and other	31	31
Computer equipment and software	150	150
Construction in progress	1,078	1,057
Right-of-use assets, financing (Note 10)	132	132
Total	2,778	2,723
Less: Accumulated depreciation	(566)	(527)
Property, plant and equipment, net	$ 2,212	$ 2,196

Depreciation and amortization expense for the three months ended March 31, 2025 and 2024 was $38 million and $35 million, respectively.

9. Other Balance Sheet Components

Accounts Receivable, net

Accounts receivable, net, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Accounts receivable	$ 249	$ 698
Less: Wholesalers chargebacks, discounts and fees	(171)	(340)
Accounts receivable, net	$ 78	$ 358

Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Prepaid services	$ 171	$ 173
Down payments and prepayments related to manufacturing and materials	84	106
Income tax receivable	72	72
Interest receivable	53	59
Value added tax receivable	45	45
Prepaid income tax	33	28
Research and development funding receivable (Note 5)	32	—
Collaboration receivable	26	58
Other current assets	69	58
Prepaid expenses and other current assets	$ 585	$ 599

Other Non-Current Assets

Other non-current assets, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Inventory, non-current[(1)]	$ 134	$ 150
Down payments and prepayments, non-current	119	139
Income tax receivable, non-current	99	97
Deferred tax assets	81	81
Goodwill	52	52
Finite-lived intangible asset	49	40
Equity investments	6	14
Other	16	21
Other non-current assets	$ 556	$ 594

[(1)] Consisted of raw materials with an anticipated consumption beyond one year.

Accrued Liabilities

Accrued liabilities, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Provisions related to product sales (Note 3)	$ 337	$ 370
Manufacturing	128	109
Compensation-related	120	312
Development operations	120	120
Clinical trials	88	94
Other external goods and services	82	131
Property, plant and equipment	49	99
Raw materials	28	41
Commercial	24	45
Loss on future firm purchase commitments[(1)]	20	60
Royalties	5	46
Accrued liabilities	$ 1,001	$ 1,427

[(1)]Related to losses that are expected to arise from firm, non-cancellable, commitments for future raw material purchases (Note 7).

Other Current Liabilities

Other current liabilities, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Estimated reimbursements to wholesalers and distributors	$ 179	$ 103
Research and development funding liability (Note 5)	—	58
Lease liabilities - financing (Note 10)	28	23
Lease liabilities - operating (Note 10)	15	14
Other	30	23
Other current liabilities	$ 252	$ 221

Other Non-Current Liabilities

Other non-current liabilities, as of March 31, 2025 and December 31, 2024 consisted of the following (in millions):

	March 31, 2025	December 31, 2024
Tax liabilities	$ 234	$ 231
Other	40	36
Other non-current liabilities	$ 274	$ 267

Deferred Revenue

The following table summarizes the activities in deferred revenue for the three months ended March 31, 2025 (in millions):

	December 31, 2024	Additions	Deductions	March 31, 2025
Net product sales	$ 188	$ —	$ (34)	$ 154
Other revenue	23	14	(8)	29
Total deferred revenue	$ 211	$ 14	$ (42)	$ 183

10. Leases

We have entered into various long-term, non-cancelable lease arrangements for our facilities and equipment, expiring at various times through 2039. Certain of these arrangements have free rent periods or escalating rent payment provisions. We recognize lease costs under such arrangements on a straight-line basis over the life of the lease. We lease various parcels of land, office, lab, and manufacturing spaces across the globe for our business operations.

We have two main campuses in Massachusetts, our Moderna Science Center (MSC), located in Cambridge, which serves as our headquarters, and our Moderna Technology Center (MTC), located in Norwood. The MSC, comprising approximately 462,000 square feet, includes our principal executive office and additional office and laboratory spaces. The MSC lease commenced in the third quarter of 2023 and has a term of 15 years, with options for two additional seven-year extensions. The MTC is a multiple-building campus spanning approximately 722,000 square feet. It includes laboratory and office space that directly supports our manufacturing operations as well as our commercial and clinical activities. The MTC was previously subject to long-term lease arrangements, and we completed the acquisition of the campus, including the underlying land and buildings, in December 2024.

Operating and financing lease right-of-use assets and lease liabilities as of March 31, 2025 and December 31, 2024 were as follows (in millions):

	March 31, 2025	December 31, 2024
Assets:		
Right-of-use assets, operating, net[1] [2]	$ 752	$ 759
Right-of-use assets, financing, net[3] [4]	59	65
Total	$ 811	$ 824
Liabilities:		
Current:		
Operating lease liabilities[5]	$ 15	$ 14
Financing lease liabilities[5]	28	23
Total current lease liabilities	43	37
Non-current:		
Operating lease liabilities, non-current	667	671
Financing lease liabilities, non-current	35	39
Total non-current lease liabilities	702	710
Total	$ 745	$ 747

[1] These assets are real estate related assets, which include land, office, manufacturing, and laboratory spaces.
[2] Net of accumulated amortization.
[3] These assets are related to contract manufacturing service agreements.
[4] Included in property, plant and equipment in the condensed consolidated balance sheets, net of accumulated depreciation.
[5] Included in other current liabilities in the condensed consolidated balance sheets.

Future minimum lease payments under our non-cancelable lease agreements as of March 31, 2025, were as follows (in millions):

Fiscal Year	Operating Leases	Financing Leases
2025 (remainder of the year)	$ 47	$ 25
2026	72	24
2027	77	18
2028	80	—
2029	82	—
Thereafter	757	—
Total minimum lease payments	1,115	67
Less amounts representing interest or imputed interest	(433)	(4)
Present value of lease liabilities	$ 682	$ 63

11. Commitments and Contingencies

Legal Proceedings

We are involved in various claims and legal proceedings of a nature considered ordinary course in our business. The outcome of any such proceedings, regardless of the merits, is inherently uncertain; therefore, assessing the likelihood of loss and any estimated damages is difficult and subject to considerable judgment. We are not currently a party to any legal proceedings for which a material loss is probable, or for which a loss is reasonably estimable at this time.

Indemnification Obligations

As permitted under Delaware law, we indemnify our officers, directors, and employees for certain events, occurrences while the officer, or director is, or was, serving at our request in such capacity. The term of the indemnification is for the officer's or director's lifetime.

We have standard indemnification arrangements in our leases for laboratory and office space that require us to indemnify the landlord against any liability for injury, loss, accident, or damage from any claims, actions, proceedings, or costs resulting from certain acts, breaches, violations, or non-performance under our leases.

We enter into indemnification provisions under our agreements with counterparties in the ordinary course of business, typically with business partners, contractors, clinical sites and customers. Under these provisions, we generally indemnify and hold harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of our activities. These indemnification provisions generally survive termination of the underlying agreement. The maximum potential amount of future payments we could be required to make under these indemnification provisions is unlimited.

Through the three months ended March 31, 2025 and the year ended December 31, 2024, we had not experienced any material losses related to these indemnification obligations, and no material claims were outstanding. We do not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related reserves were established.

Purchase Commitments and Purchase Orders

We enter into agreements in the normal course of business with vendors and contract manufacturing organizations for raw materials and manufacturing services and with vendors for preclinical research studies, clinical trials and other goods or services. As of March 31, 2025, we had $454 million of non-cancelable purchase commitments related to raw materials and manufacturing agreements, which are expected to be paid through 2027. As of March 31, 2025, we had $191 million of non-cancelable purchase commitments related to research and development and other goods and services which are expected to be paid through 2028. These amounts represent our minimum contractual obligations, including termination fees.

In addition to purchase commitments, we have agreements with third parties for various goods and services, including services related to clinical operations and support and contract manufacturing, for which we are not contractually able to terminate for convenience and avoid any and all future obligations to the vendors. Certain agreements provide for termination rights subject to termination fees or wind-down costs. Under such agreements, we are contractually obligated to make certain payments to vendors, mainly, to reimburse them for their unrecoverable outlays incurred prior to cancellation. As of March 31, 2025, we had cancelable open purchase orders of $2.6 billion in total under such agreements for our significant clinical operations and support and contract manufacturing. These amounts represent only our estimate of those items for which we had a contractual commitment to pay as of March 31, 2025, assuming we would not cancel these agreements. The actual amounts we pay in the future to the vendors under such agreements may differ from the purchase order amounts.

Licenses to Patented Technology

We have patent license agreements with Cellscript, LLC and its affiliate, mRNA RiboTherapeutics, Inc., and the National Institute of Allergy and Infectious Diseases (NIAID), an Institute of the National Institutes of Health (NIH). Under these agreements, we are required to pay royalties and certain milestone payments. For further information on our licensing and royalty payments, please refer to our 2024 Form 10-K under the heading “Business—Intellectual Property—In-licensed intellectual property” and Note 11 to our consolidated financial statements contained therein.

In January 2025, we entered into a non-exclusive patent license agreement with NIAID to license certain patent rights related to the development of mRNA-based vaccines for the prevention or treatment of respiratory syncytial virus (RSV) infection. Upon execution of the agreement, we made a total payment of $10 million, which was capitalized as an intangible asset and is amortized to cost of sales on a straight-line basis over the estimated useful life of the licensed patents. In addition, we are obligated to pay low single-digit royalties on future net sales of licensed products.

For the three months ended March 31, 2025 and 2024, we recognized $5 million and $8 million, respectively, of royalty expenses associated with our product sales. These royalty expenses were recorded to cost of sales in our condensed consolidated statements of operations.

Additionally, we have other in-license agreements with third parties which require us to make future development, regulatory and commercial milestone payments and sales-based royalties for specified products associated with the agreements. The achievement of these milestones have not yet occurred as of March 31, 2025.

12. Stock-Based Compensation and Share Repurchase Programs

Stock-Based Compensation

The following table presents the components and classification of stock-based compensation expense for the three months ended March 31, 2025 and 2024 as follows (in millions):

	Three Months Ended March 31,	
	2025	2024
Options	$ 39	$ 40
Restricted Stock Units (RSUs)	71	55
Performance Stock Units (PSUs)	1	3
Employee Stock Purchase Plan (ESPP)	4	3
Total	$ 115	$ 101
Cost of sales	$ 7	$ 7
Research and development	69	60
Selling, general and administrative	39	34
Total	$ 115	$ 101

As of March 31, 2025, there was $1.1 billion of total unrecognized compensation cost related to unvested stock-based compensation with respect to options, RSUs and PSUs granted. That cost is expected to be recognized over a weighted-average period of 2.3 years as of March 31, 2025.

Effective in the first quarter of 2025, we revised the assumptions used in the Black-Scholes option pricing model for estimating the grant date fair value of stock options. The expected term is estimated using a methodology that combines historical settlement data with a hypothetical settlement pattern for outstanding options, based on estimated time to arrive at-the-money and adjusted for employee departure rates. We also revised our approach for estimating expected volatility by removing peer company data and using a blended measure of our own historical and implied volatility. These updates reflect the increased availability of company-specific data and did not have a material impact on stock-based compensation and our financial statements.

Share Repurchase Programs

As of March 31, 2025, $1.7 billion of our Board of Directors' authorization for repurchases of our common stock (the 2022 Repurchase Programs) remains outstanding, with no expiration date. During the three months ended March 31, 2025, there were no shares repurchased.

13. Income Taxes

The following table summarizes our income tax expense for the periods presented (in millions, except for percentages):

	Three Months Ended March 31,	
	2025	2024
Loss before income taxes	$ (964)	$ (1,165)
Provision for income taxes	$ 7	$ 10
Effective tax rate	(0.7)%	(0.9)%

The effective tax rate for the three months ended March 31, 2025 was higher than the statutory rate, primarily due to our global valuation allowance, which limits our ability to recognize tax benefits from the loss. The higher effective tax rate was also impacted by certain of our foreign subsidiaries that have taxable income, while we incurred a net loss before income taxes in other jurisdictions. The effective tax rate for the three months ended March 31, 2025 was consistent with the same period in 2024, primarily due to the continued maintenance of global valuation allowance. For additional details regarding our deferred tax assets and the policies governing our valuation allowance, please refer to Note 13 to our consolidated financial statements in our 2024 Form 10-K.

We periodically reassess the need for valuation allowances on our deferred tax assets, considering both positive and negative evidence to evaluate whether it is more likely than not that all or a portion of such assets will not be realized. Significant management judgment is required in assessing the realizability of our deferred tax assets. In the event that actual results differ from our estimates, we adjust our estimates in future periods and we may need to modify our valuation allowance, which could materially impact our financial position and results of operations.

We file U.S. federal income tax returns and income tax returns in various state, local and foreign jurisdictions. As of March 31, 2025, we are under audit in various state and foreign jurisdictions; however, no adjustments to our tax positions have been proposed at this time.

14. Loss per Share

The computation of basic loss per share (EPS) is based on the weighted-average number of our common shares outstanding. The computation of diluted EPS is based on the weighted-average number of our common shares outstanding and potential dilutive common shares during the period as determined by using the treasury stock method.

Basic and diluted EPS for the three months ended March 31, 2025 and 2024 were calculated as follows (in millions, except per share data):

	Three Months Ended March 31,	
	2025	2024
Numerator:		
Net loss	$ (971)	$ (1,175)
Denominator:		
Basic and diluted weighted-average common shares outstanding	386	382
Basic and diluted EPS	$ (2.52)	$ (3.07)
Common stock equivalents excluded from the EPS computation above because their inclusion would have been anti-dilutive	49	35

2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our unaudited financial information and related notes included in this Form 10-Q and our consolidated financial statements and related notes and other financial information in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, which was filed with the Securities and Exchange Commission (the SEC) on February 21, 2025 (the 2024 Form 10-K).

Overview

We are a biotechnology company advancing a new class of medicines made of messenger RNA (mRNA). mRNA medicines are designed to direct the body's cells to produce intracellular, membrane or secreted proteins that have a therapeutic or preventive benefit with the potential to address a broad spectrum of diseases. Our platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, providing us the capability to pursue in parallel a robust pipeline of new development candidates. We are developing medicines across four franchises: respiratory virus vaccines, latent and other virus vaccines, oncology therapeutics and rare disease therapeutics.

Since our founding in 2010, we have transformed from a research-stage company advancing programs in the field of mRNA to a commercial enterprise with a diverse clinical portfolio of vaccines and therapeutics across several modalities, a broad intellectual property portfolio and integrated manufacturing capabilities that allow for rapid clinical and commercial production at scale. We have a diverse and extensive development pipeline of 31 development candidates across our 41 development programs, of which 38 are in clinical studies currently.

Our approved COVID vaccine (mRNA-1273) is our first commercial product and is marketed under the name Spikevax®. mRNA-1273 was first developed to target the SARS-CoV-2 ancestral strain, and we have leveraged our mRNA platform to rapidly adapt our vaccine to emerging SARS-CoV-2 strains to provide protection as the virus evolves and regulatory guidance is updated. In May 2024, the U.S. Food and Drug Administration (FDA) granted approval for mRESVIA® (mRNA-1345), our mRNA vaccine against respiratory syncytial virus (RSV), to protect adults aged 60 and older from lower respiratory tract disease caused by RSV infection. This marks our second approved product developed using our mRNA platform.

Business Highlights

RSV

mRESVIA has received regulatory approvals in the U.S. and European Union for use in adults aged 60 years and older and is commercially available. In the first quarter of 2025, additional approvals were granted in Australia, the United Kingdom, Switzerland and Taiwan, further expanding potential access to mRESVIA for older adults. We continue to pursue regulatory submissions in additional markets worldwide.

European Union Tender

In January 2025, we were awarded a multi-year tender agreement to compete to supply our mRNA COVID vaccine to 17 participating countries in the European Union, as well as Norway and North Macedonia. The agreement allows participating countries to access vaccine supply over a period of up to four years and supports diversity of supply, including multiple product formats such as prefilled syringes. Purchases under the agreement are subject to future country-level orders.

Net Product Sales and Net Loss Per Share

For the first quarter of 2025, we recognized net product sales of $86 million from sales of our COVID and RSV vaccines, compared to $167 million for the first quarter of 2024. Loss per share was $(2.52) for the first quarter of 2025, compared to $(3.07) for the first quarter of 2024.

Recent Program Developments

Respiratory Virus Vaccines

- *Next-generation COVID vaccine:* We shared pivotal safety, immunogenicity and relative vaccine efficacy data for our next-generation COVID vaccine (mRNA-1283) at the Advisory Committee on Immunization Practices meeting in April 2025. We filed for regulatory approval of mRNA-1283 with the FDA using a priority review voucher in 2024. The FDA has assigned a Prescription Drug User Fee Act (PDUFA) goal date of May 31, 2025.

- *RSV vaccine:* We recently shared positive Phase 3 data for our RSV vaccine (mRNA-1345) in high-risk adults aged 18 to 59 at the ESCMID 2025 Global Congress. We filed for regulatory approval of mRNA-1345 for high-risk adults with the FDA using a priority review voucher in 2024. The FDA has assigned a PDUFA goal date of June 12, 2025.

- *Seasonal flu + COVID vaccine:* We shared positive Phase 3 immunogenicity data for our flu+COVID combination vaccine (mRNA-1083) for adults aged 50 years and older at our 2024 R&D Day event. We submitted mRNA-1083 for regulatory approval in older adults in 2024. Based on FDA feedback confirming the need for Phase 3 flu efficacy data, we expect an extended review timeline and are now targeting approval in 2026. Recently, we updated our prioritized research and development portfolio, resulting in the deprioritization of mRNA-1083 for adults aged 18 to 49.

- *Seasonal flu vaccine:* We have shared positive Phase 3 immunogenicity and safety data for our seasonal flu vaccine (mRNA-1010). We are conducting a two-season Phase 3 efficacy study (P304), which exceeded its case accrual target in the first season. We anticipate an interim data readout in summer 2025.

Due to our strategic prioritization efforts, we have paused development of our mRNA-1011/1012 and mRNA-1020/1030 programs.

Latent and Other Virus Vaccines

- *Cytomegalovirus (CMV) vaccine:* The pivotal Phase 3 study of our CMV vaccine candidate (mRNA-1647) is fully enrolled and accruing cases, evaluating its efficacy, safety and immunogenicity in the prevention of primary infection in women of childbearing age. The Data Safety Monitoring Board (DSMB) met in December 2024 to review the initial study data and informed us that the criterion for early efficacy was not met. The DSMB recommended that the study continue as planned. We remain blinded and anticipate final efficacy data from the study in 2025.

- *Norovirus vaccine:* The two-season Phase 3 study evaluating the efficacy, safety and immunogenicity of our trivalent vaccine candidate against norovirus (mRNA-1403) is fully enrolled in the Northern Hemisphere and enrolling in the Southern Hemisphere. The FDA clinical hold following a single adverse event report of a case of Guillain-Barré syndrome has been lifted. The timing of the Phase 3 readout will be dependent on case accruals.

Oncology Therapeutics

- *Individualized Neoantigen Therapy (INT):* We continue to demonstrate the potential clinical benefit of INT (mRNA-4157). In collaboration with Merck, the Phase 3 clinical trial for adjuvant melanoma is fully enrolled. Two Phase 3 studies for non-small cell lung cancer (NSCLC) are enrolling. A randomized Phase 2 study for high-risk muscle invasive bladder cancer is enrolling, and a randomized Phase 2 study for adjuvant renal cell carcinoma is enrolling. We and Merck have launched a new Phase 2 study for patients with high-risk non-muscle invasive bladder cancer.

- *Checkpoint adaptive immune modulation therapy (AIM-T).* We have expanded the number of oncology development candidates in our prioritized pipeline with the addition of Checkpoint AIM-T (mRNA-4359). The Phase 1/2 study is ongoing and a Phase 2 study, which includes first-line melanoma and first-line metastatic NSCLC patients, is enrolling.

Rare Diseases

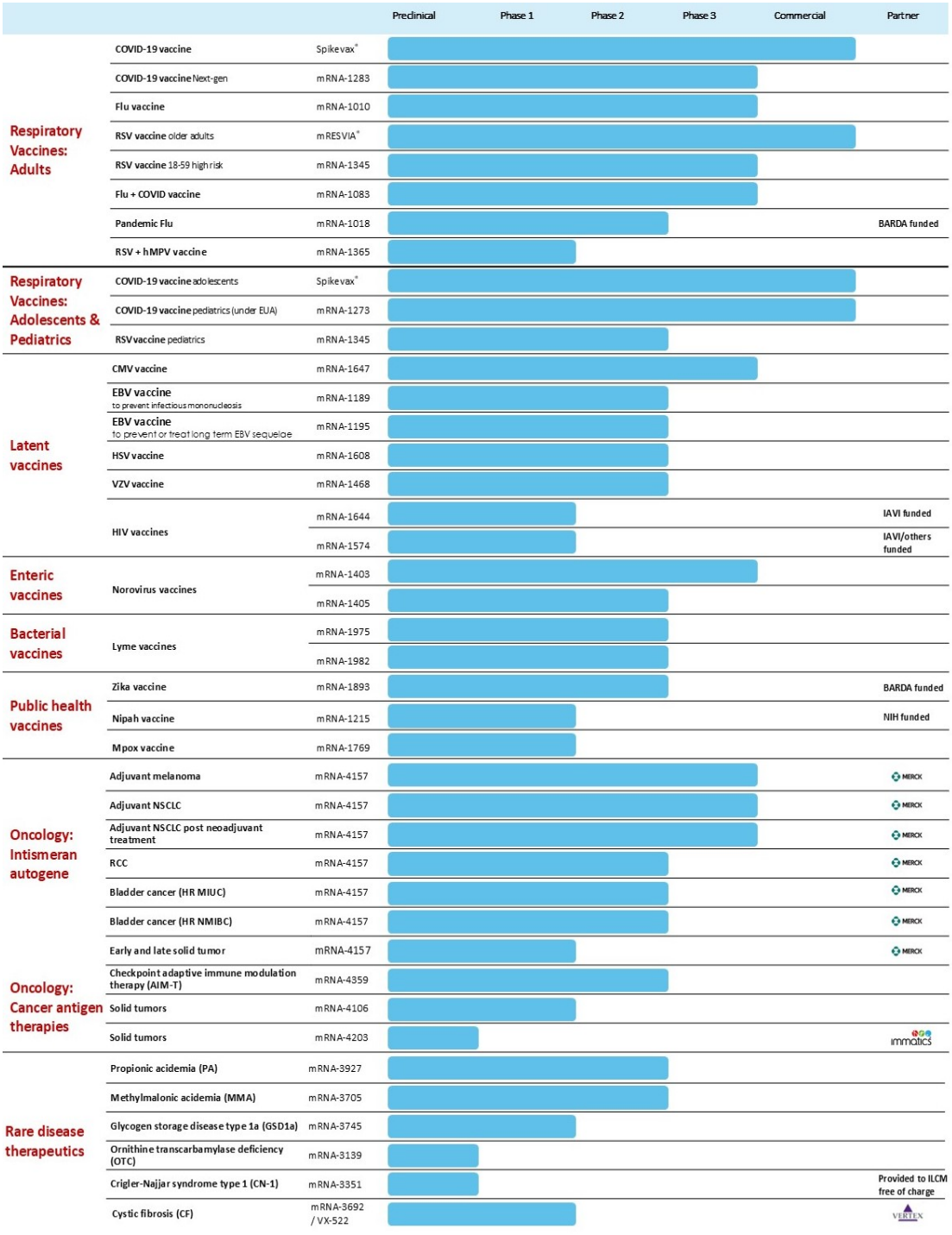
- *Propionic acidemia (PA) therapeutic:* In an ongoing Phase 1/2 study designed to evaluate safety and pharmacology in trial participants with PA, our investigational therapeutic (mRNA-3927) has been generally well-tolerated to date with no events meeting protocol-defined dose-limiting toxicity criteria. Early results suggest potential decreases in annualized metabolic decompensation event (MDE) frequency compared to pre-treatment, and the majority of patients have elected to continue on the open label extension study. mRNA-3927 is in a registrational study.

- *Methylmalonic acidemia (MMA) therapeutic:* Our investigational therapeutic for MMA (mRNA-3705) has been selected by the FDA for the Support for Clinical Trials Advancing Rare Disease Therapeutics (START) pilot program. We and the FDA have agreed on the pivotal study design. We expect to start a registrational study in 2025.

- *Phenylketonuria (PKU):* We have discontinued development of our preclinical PKU candidate (mRNA-3210) due to our strategic prioritization efforts.

Our Pipeline

The following chart shows our current pipeline of 41 development programs across our several modalities.



Abbreviations: BARDA, Biomedical Advanced Research and Development Authority; CMV, cytomegalovirus; EBV, Epstein-Barr virus; HIV, human immunodeficiency virus; hMPV, human metapneumovirus; HR MIUC, high-risk muscle-invasive urothelial carcinoma; HR NMIBC, high-risk non-muscle invasive bladder cancer; HSV, herpes simplex virus; IAVI, International AIDS Vaccine Initiative; ILCM, Institute for Life Changing Medicines; IM, infectious mononucleosis; NIH, National Institutes of Health; NSCLC, non-small cell lung cancer; RCC, renal cell carcinoma; RSV, respiratory syncytial virus; VZV, varicella-zoster virus.

Results of operations

The following table summarizes our condensed consolidated statements of operations for the periods presented (in millions):

	Three Months Ended March 31,		Change 2025 vs. 2024	
	2025	2024	$	%
Revenue:				
Net product sales	$ 86	$ 167	$ (81)	(49)%
Other revenue	22	—	22	100%
Total revenue	108	167	(59)	(35)%
Operating expenses:				
Cost of sales	90	96	(6)	(6)%
Research and development	856	1,063	(207)	(19)%
Selling, general and administrative	212	274	(62)	(23)%
Total operating expenses	1,158	1,433	(275)	(19)%
Loss from operations	(1,050)	(1,266)	216	(17)%
Interest income	90	120	(30)	(25)%
Other expense, net	(4)	(19)	15	(79)%
Loss before income taxes	(964)	(1,165)	201	(17)%
Provision for income taxes	7	10	(3)	(30)%
Net loss	$ (971)	$ (1,175)	$ 204	(17)%

Revenue

Net product sales

Net product sales by customer geographic location were as follows (in millions):

	Three Months Ended March 31,	
	2025	2024
United States	$ 31	$ 100
Europe	—	—
Rest of world	55	67
Total	$ 86	$ 167

Net product sales by product were as follows (in millions):

	Three Months Ended March 31,	
	2025	2024
COVID	$ 84	$ 167
RSV	2	—
Total	$ 86	$ 167

As of March 31, 2025, we have two commercial products authorized for use, our COVID vaccine and our RSV vaccine. The RSV vaccine was approved by the FDA in May 2024 for adults aged 60 years and older.

We sell our COVID vaccine to commercial market as well as to foreign governments and international organizations. We launched commercial sales of our RSV vaccine in the third quarter of 2024. In the U.S., our COVID and RSV vaccines are sold primarily to wholesalers and distributors, and to a lesser extent, directly to retailers and healthcare providers. Net product sales are recognized net of estimated wholesaler chargebacks, invoice discounts for prompt payments and pre-orders, provisions for sales returns and government rebates, and other related deductions.

The following table summarizes product sales provision for the periods presented (in millions):

	Three Months Ended March 31,	
	2025	2024
Gross product sales	$ 105	$ 222
Product sales provision:		
Wholesaler chargebacks, discounts and fees	(22)	(22)
Returns, rebates and other fees	3	(33)
Total product sales provision	$ (19)	$ (55)
Net product sales	$ 86	$ 167

Prior to the third quarter of 2023, we sold our COVID vaccine to the U.S. Government, foreign governments and international organizations. The agreements and related amendments with these entities generally do not include variable consideration, such as discounts, rebates or returns. Certain of these agreements entitle us to upfront deposits for our COVID vaccine supply, initially recorded as deferred revenue. As of March 31, 2025, we had deferred revenue of $154 million associated with customer deposits received or billable under supply agreements, of which $96 million is expected to be realized in less than one year.

Other revenue

Other revenue comprises grant revenue, collaboration revenue, licensing and royalty revenue, and other miscellaneous revenue.

For the three months ended March 31, 2025, total revenue decreased by $59 million, or 35%, compared to the same period in 2024, mainly due to lower net product sales of our COVID vaccine.

Net product sales for the three months ended March 31, 2025 decreased by $81 million, or 49%, compared to the same period in 2024, primarily due to lower sales in the U.S. market, driven by a reduced vaccination rate. International sales also declined, but to a lesser extent.

We expect demand for our COVID and RSV vaccines to follow a seasonal pattern aligned with fall and winter vaccination campaigns in both hemispheres. As COVID has transitioned to a seasonal respiratory vaccine, we anticipate a decline in net product sales for the full year 2025 compared to 2024, primarily due to lower expected vaccination rates and increased competition. Although we commenced sales of our RSV vaccine in the third quarter of 2024, product sales from our RSV vaccine are not expected to present a significant portion of total product sales in 2025.

Other revenue increased by $22 million, or 100%, for the three months ended March 31, 2025, compared to the same period in 2024. The increase for the three and three months ended was mainly due to an increase in licensing and royalty and other revenue.

Operating expenses

Cost of sales

Cost of sales for the three months ended March 31, 2025 was $90 million, which included third-party royalties of $5 million, inventory write-downs of $42 million, primarily related to our finished and semi-finished COVID vaccine inventory and certain raw materials, unutilized manufacturing capacity and wind-down costs of $21 million, and losses on firm purchase commitments of $10 million. Please refer to Note 7 to our condensed consolidated financial statements for inventory related charges. These charges in 2025, other than royalties, were largely driven by customer demand forecast adjustments and commitments related to manufacturing capacity.

Cost of sales for the three months ended March 31, 2025 decreased by $6 million, or 6%, compared to the same period in 2024, primarily due to lower sales volume. The decrease also reflects the seasonal nature of our COVID vaccine business, with limited product sales in both periods. Despite the overall decrease in cost of sales, cost of sales as a percentage of net product sales for the three months ended March 31, 2025 increased to 104%, compared to 58% for the same period in 2024, reflecting the impact of lower net product sales.

We expect full year 2025 cost of sales to be lower compared to 2024, reflecting lower anticipated production and inventory-related charges. However, cost of sales as a percentage of net product sales is expected to vary widely due to continued uncertainty around demand and increased market competition. This variability is primarily driven by the fixed nature of a significant portion of our manufacturing costs, which cannot be quickly adjusted in response to changes in sales volume. As part of our long-term strategy, we are continuing to invest in internal manufacturing capabilities to improve cost control and support potential future product launches.

Research and development expenses

Research and development expenses decreased by $207 million, or 19%, for the three months ended March 31, 2025, compared to the same period in 2024. The reduction was primarily driven by a $134 million decrease in clinical trial and manufacturing expenses, reflecting lower spend across our RSV, seasonal flu, COVID, and combination vaccine programs due to timing of trial activities and program wind-downs. This reduction was partially offset by increased investment in our INT and norovirus programs. Consulting and outside services expenses declined by $42 million as a result of cost management initiatives, while pre-clinical research expenses decreased by $35 million due to investment reprioritization.

We anticipate a reduction in research and development expenses in 2025 compared to 2024, driven by disciplined cost management and a focused approach to pipeline execution. While we continue to advance our pipeline, we are maintaining investments in late-stage programs, including our INT, norovirus, CMV, and combination vaccine programs.

Selling, general and administrative expenses

Selling, general and administrative expenses decreased by $62 million, or 23%, for the three months ended March 31, 2025, compared to the same period in 2024. The decline was primarily driven by broad-based reductions across digital, facility, marketing, personnel-related expenses, and external consulting and service costs, as we continue to streamline operations and prioritize cost management.

We anticipate a modest reduction in selling, general and administrative expenses in 2025 compared to 2024. This reflects our ongoing commitment to efficiency as we expand our global commercial, regulatory, sales and marketing infrastructure, while continuing to invest in digital capabilities and leverage artificial intelligence technologies. These efforts align with our strategic focus on advancing our program development and enhancing our overall business processes.

Interest income

For the three months ended March 31, 2025, interest income decreased by $30 million, or 25%, compared to the same period in 2024. The decrease in the three-month period was primarily due to lower average investment balances.

Other expense, net

The following tables summarize other expense, net for the periods presented (in millions):

	Three Months Ended March 31,		Change 2025 vs. 2024	
	2025	2024	$	%
Loss on investments	$ (7)	$ (15)	$ 8	(53)%
Interest expense	(1)	(6)	5	(83)%
Other income, net	4	2	2	100%
Total other expense, net	$ (4)	$ (19)	$ 15	(79)%

For the three months ended March 31, 2025, total other expense, net decreased by $15 million, or 79%, compared to the same period in 2024. The decrease was primarily driven by lower interest expense and reduced losses on equity investments. Interest expense is primarily related to our finance leases related to our Moderna Technology Center prior to its acquisition in December 2024, and certain contract manufacturing service agreements. Please refer to Note 10 to our condensed consolidated financial statements for additional information.

Income taxes

Provision for income taxes decreased by $3 million, or 30%, for the three months ended March 31, 2025, compared to the same period in 2024, primarily due to the continued maintenance of our global valuation allowance, which limits our ability to recognize tax benefits from the loss. The effective tax rate remained consistent with the prior year and continues to be immaterial. Please refer to Note 13 to our condensed consolidated financial statements for additional details.

Liquidity and capital resources

The following table summarizes our cash, cash equivalents, investments and working capital as of March 31, 2025 and December 31, 2024 (in millions):

	March 31, 2025	December 31, 2024
Financial assets:		
Cash and cash equivalents	$ 1,623	$ 1,927
Investments	4,352	5,098
Investments, non-current	2,418	2,494
Total	$ 8,393	$ 9,519
Working capital:		
Current assets	$ 6,766	$ 8,099
Current liabilities	1,604	2,206
Total	$ 5,162	$ 5,893

Our cash, cash equivalents and investments are invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation. Investments, consisting primarily of government and corporate debt securities, are stated at fair value. Cash, cash equivalents and investments as of March 31, 2025 decreased by $1.1 billion, or 12%, compared to December 31, 2024. The decrease in cash, cash equivalents and investments was primarily due to a net cash outflow from operating activities of $1.0 billion and purchases of property and equipment of $117 million during the three months ended March 31, 2025.

Working capital, defined as current assets less current liabilities, as of March 31, 2025 decreased by $731 million, or 12%, compared to December 31, 2024. This was primarily driven by a decrease in cash, cash equivalents and current investments of $1.1 billion to fund operations, and a decrease in accounts receivable of $280 million, mainly due to timing of collections, partially offset by a decrease in accrued liabilities and accounts payable of $605 million, driven by lower spend during the period.

As of March 31, 2025, we did not have any off-balance sheet arrangements, other than those obligations and commitments disclosed herein.

Cash flow

The following table summarizes the primary sources and uses of cash for each period presented (in millions):

	Three Months Ended March 31,	
	2025	2024
Net cash (used in) provided by:		
Operating activities	$ (1,037)	$ (989)
Investing activities	730	118
Financing activities	4	14
Net decrease in cash, cash equivalents and restricted cash	$ (303)	$ (857)

Operating activities

We derive cash flows from operations primarily from cash collected from customer deposits and accounts receivable related to our product sales and other revenue, as well as certain government-sponsored and private organizations, strategic alliances and funding arrangements. Our operating cash flows are significantly affected by our use of cash for operating expenses and working capital to support the business.

Beginning in the third quarter of 2020, we entered into supply agreements with the U.S. Government, foreign governments and international organizations for the supply of our COVID vaccine and received upfront deposits. In the third quarter of 2023, we commenced sales of our COVID vaccine to the U.S. commercial market, in addition to continuing sales to foreign governments and international organizations. In the U.S., our COVID vaccine is sold primarily to wholesalers and distributors, and to a lesser extent, directly to retailers and healthcare providers. We also commenced sales of our RSV vaccine in the third quarter of 2024. Wholesalers and distributors typically do not make upfront payments to us. As of March 31, 2025, we had $154 million in deferred revenue related to customer deposits received or billable.

Net cash used in operating activities for the three months ended March 31, 2025 was $1.0 billion and consisted of net loss of $1.0 billion, non-cash adjustments of $145 million and a net change in assets and liabilities of $211 million. Non-cash items primarily included stock-based compensation of $115 million, and depreciation and amortization of $39 million. The net change in assets and liabilities was mainly due to a decrease in accrued liabilities and accounts payable of $537 million, driven by overall lower spend in the period, partially offset by a decrease in accounts receivable of $280 million, driven by timing of collections.

Net cash used in operating activities increased by $48 million, or 5%, during the three months ended March 31, 2025, compared to the same period in 2024, primarily attributable to a change in accounts receivable of $475 million, driven by declined product sales, partially offset by a decrease in net loss of $204 million, and a change in accrued liabilities and accounts payable of $164 million, primarily driven by lower spend in the period.

Investing activities

Our primary investing activities consist of purchases, sales, and maturities of our investments, capital expenditures for land, building, leasehold improvements, manufacturing, laboratory, computer equipment and software, and business development.

Net cash provided by investing activities for the three months ended March 31, 2025 was $730 million, driven primarily by proceeds from maturities and sales of marketable securities of $2.6 billion, partially offset by purchases of marketable securities of $1.8 billion, and purchases of property and equipment of $117 million.

Net investing cash flows increased by $612 million, or 519%, during the three months ended March 31, 2025, compared to the same period in 2024, primarily due to a decrease in purchases of marketable securities of $780 million.

Financing activities

Net cash provided by financing activities for the three months ended March 31, 2025 was $4 million, primarily related to proceeds from issuance of common stock through equity plans. Financing cash flows remained immaterial and were consistent with the same period in 2024.

Operation and funding requirements

Our principal sources of funding as of March 31, 2025 consisted of cash and cash equivalents, investments, and cash we may generate from operations. From our inception to the end of 2020, we incurred significant losses from operations due to our significant research and development expenses. Following authorization of our first commercial product in December 2020, we generated significant net income in both 2022 and 2021. We also incurred a net loss of $1.0 billion for the three months ended March 31, 2025 and net losses of $3.6 billion and $4.7 billion for 2024 and 2023, respectively. We have retained earnings of $9.1 billion as of March 31, 2025.

We have significant future capital requirements including expected operating expenses to conduct research and development activities, operate our organization, and meet capital expenditure needs. We anticipate maintaining substantial expenses across all areas of our ongoing activities, particularly as we continue research and development of our development candidates and clinical activities for our investigational medicines. This also extends to our manufacturing costs, including our arrangements with our supply and manufacturing partners. Our ongoing work on our INT, norovirus, flu+COVID combination, CMV, RSV, and next-generation COVID vaccine candidates, development of any new COVID vaccines against variants of SARS-CoV-2, late-stage clinical development, investments in digital capabilities and artificial intelligence technologies, and buildout of global commercial, regulatory, sales and marketing infrastructure and manufacturing facilities will require significant cash outflows in future periods, most of which will not be reimbursed or otherwise paid for by our partners or collaborators. In addition, we have substantial facility, lease and purchase obligations (refer to Note 10 and Note 11 to our condensed consolidated financial statements). We have entered into various collaboration and licensing agreements, as well as a research and development funding arrangement with a third party. These arrangements collectively encompass the funding of specific research and development activities, with the distinction that under the research and development funding arrangement, we receive funding. However, for all these arrangements, we may be obligated to make potential future milestone and royalty payments.

We believe that our cash, cash equivalents, and investments as of March 31, 2025, together with cash expected to be generated from product sales, will be sufficient to enable us to fund our projected operations and capital expenditures through at least the next 12 months from the issuance of these financial statements included in this Form 10-Q. We are subject to all the risks related to the development and commercialization of novel medicines, and we may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors, which may adversely affect our business. For example, we experienced a decline in customer demand for our COVID vaccine in 2023 and 2024, and this trend has continued into 2025, reflecting the market's ongoing transition to a seasonal commercial pattern in the endemic COVID vaccine market. We foresee that our commitment to investing in our business for future product launches may lead to continued negative cash flows from operations in upcoming periods. Our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect.

Critical accounting policies and significant judgments and estimates

There have been no material changes in our critical accounting policies and estimates in the preparation of our condensed consolidated financial statements during the three months ended March 31, 2025 compared to those disclosed in our 2024 Form 10-K.

Contractual Obligations

As of March 31, 2025, other than disclosed within Note 10 and Note 11 to our condensed consolidated financial statements, there have been no material changes to our contractual obligations and commitments from those described under “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in our 2024 Form 10-K.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Our market risks, and the way we manage them, are summarized in Part II, Item 7A., “Quantitative and Qualitative Disclosures About Market Risk” of our 2024 Form 10-K. There have been no material changes to our market risk or to our management of such risks for the three months ended March 31, 2025.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2025. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of March 31, 2025, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the three months ended March 31, 2025 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by the collusion of two or more people or by a management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II

Item 1. Legal Proceedings

We are involved in various claims and legal proceedings of a nature considered ordinary course in our business, including those described in our 2024 Form 10-K under the heading “Legal Proceedings.” Most of the issues raised by these claims are highly complex and subject to substantial uncertainties. For a description of risks relating to these and other legal proceedings we face, see Part I, Item 1A., “Risk Factors,” of our 2024 Form 10-K, including the discussion under the headings entitled “Risks related to our intellectual property” and “Risks related to the manufacturing of our commercial products and product candidates.” The outcome of any such proceedings, regardless of the merits, is inherently uncertain; therefore, assessing the likelihood of loss and any estimated damages is difficult and subject to considerable judgment.

Pfizer/BioNTech Patent Litigation

As more fully described in our 2024 Form 10-K, we have initiated patent infringement proceedings against Pfizer Inc. (Pfizer) and BioNTech SE (and affiliated entities, together BioNTech) in the U.S. and Europe. The U.S. litigation has been stayed pending the outcome of two Inter Partes Proceedings (IPRs) before the U.S. Patent and Trademark Office’s Patent Trial and Appeal Board (PTAB) regarding the validity of two of the three asserted Moderna patents in the lawsuit. In March 2025, the PTAB found all challenged claims unpatentable in those two patents. The decision is subject to appeal.

Also in March 2025, the Dusseldorf Regional Court in Germany ruled that Pfizer and BioNTech violated one of our European patents related to our COVID vaccine technology and that they owe us damages related to the sale of their COVID vaccine. Pfizer and BioNTech have appealed this decision. The court has not ruled on the amount of damages to be paid, which will depend on further legal proceedings.

Proceedings Related to Patents Owned by Arbutus

In March 2025, Arbutus Biopharma Corporation (Arbutus) and Genevant Sciences GmbH (Genevant) filed five international lawsuits asserting that our manufacture and sale of Spikevax and/or mRESVIA infringes certain patents concerning lipid nanoparticles. The companies filed lawsuits in the Canadian Federal Court, Tokyo District Court in Japan and Swiss Federal Patent Court, and submitted two lawsuits to the Unified Patent Court (UPC). The two UPC actions seek relief in all UPC member states and in ten additional European Patent Convention contracting states. Each proceeding identifies Spikevax and mRESVIA as accused products except for the Canadian proceeding, which only identifies Spikevax. The complaints seek monetary relief and injunctive relief.

Proceedings Related to Patents Owned by GSK

As more fully described in our 2024 Form 10-K, GlaxoSmithKline Biologicals SA (GSK) has filed two complaints against us in the U.S. District Court for the District of Delaware, asserting that either Spikevax or mRESVIA infringe certain patents owned by GSK. Trial dates have been set for both cases, with the trial related to Spikevax to begin July 19, 2027, and the trial related to mRESVIA to begin August 23, 2027.

Item 1A. Risk Factors

Information regarding risk and uncertainties related to our business appears in Part I, Item 1A. “Risk Factors” of our 2024 Form 10-K. There have been no material changes from the risk factors previously disclosed in the 2024 Form 10-K.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Issuer Purchases of Equity Securities

On August 1, 2022, our Board of Directors authorized a share repurchase program for our common stock of up to $3.0 billion, with no expiration date. During the three months ended March 31, 2025, there were no shares repurchased. As of March 31, 2025, $1.7 billion of our Board of Directors’ authorization for repurchases of our common stock remains outstanding, with no expiration date.

For details about our share repurchase programs, please refer to Note 12 to our consolidated financial statements, as set forth in our 2024 Form 10-K.

Item 5. Other Information

On March 13, 2025, Abbas Hussain, one of our directors, adopted a trading arrangement that is intended to satisfy the affirmative defense of Rule 10b5-1(c) (the Hussain 10b5-1 Plan). The Hussain 10b5-1 Plan provides for the sale on June 11, 2025 of up to 313 shares of the Company’s common stock to satisfy tax obligations in connection with the vesting of equity awards. The Hussain 10b5-1 Plan expires on June 30, 2025, or upon the earlier completion of all authorized transactions under the Hussain 10b5-1 Plan.

Item 6. Exhibits

The Exhibits listed below are filed or incorporated by reference as part of this Form 10-Q.

Exhibit No.	Exhibit Index
31.1*	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1+	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS*	XBRL Instance Document - The instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Link Document
104*	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101.)

* Filed herewith

\+ The certification furnished in Exhibit 32.1 hereto is deemed to accompany this Form 10-Q and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended. Such certification will not be deemed to be incorporated by reference into any filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

SIGNATURES

Pursuant to the requirements of the Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MODERNA, INC.

Date:
May 1, 2025

By: /s/ Stéphane Bancel

Stéphane Bancel
Chief Executive Officer and Director
(*Principal Executive Officer)*

Date:
May 1, 2025

By: /s/ James M. Mock

James M. Mock
Chief Financial Officer
(*Principal Financial Officer)*

Exhibit 31.1

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

CERTIFICATIONS

I, Stéphane Bancel, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Moderna, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 1, 2025

By: /s/ Stéphane Bancel
Stéphane Bancel
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

CERTIFICATIONS

I, James M. Mock, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Moderna, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 1, 2025

By: /s/ James M. Mock

James M. Mock
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Moderna, Inc. (the "Company") for the period ended March 31, 2025 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Stéphane Bancel, Chief Executive Officer of the Company, and James M. Mock, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of our knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 1, 2025

By: /s/ Stéphane Bancel
Stéphane Bancel
Chief Executive Officer
(Principal Executive Officer)

Date: May 1, 2025

By: /s/ James M. Mock
James M. Mock
Chief Financial Officer
(Principal Financial Officer)