SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

FORM 8-K

CURRENT REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of report (Date of earliest event reported): November 6, 2024

IONIS PHARMACEUTICALS, INC.

(Exact Name of Registrant as Specified in Charter)

Delaware

(State or Other Jurisdiction of Incorporation)

000-19125 (Commission File No.)

33-0336973

(IRS Employer Identification No.)

2855 Gazelle Court Carlsbad, CA 92010

(Address of Principal Executive Offices and Zip Code)

Registrant's telephone number, including area code: (760) 931-9200

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:						
☐ Written communications pursuant to Rule 425 ur	nder the Securities Act (17 CFR 230.	425)				
Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)						
Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))						
☐ Pre-commencement communications pursuant to	Rule 13e-4(c) under the Exchange	Act (17 CFR 240.13e-4(c))				
Securities registered pursuant to Section 12(b) of the	Act:					
Title of each class	Trading symbol	Name of each exchange on which registered				
Common Stock, \$.001 Par Value	"IONS"	The Nasdaq Stock Market, LLC				
Indicate by check mark whether the registrant is an enchapter) or Rule 12b-2 of the Securities Exchange Ac		in Rule 405 of the Securities Act of 1933 (Section 230.405 of this chapter).				
		Emerging growth company \Box				
If an emerging growth company, indicate by check n or revised financial accounting standards provided pu	e	to use the extended transition period for complying with any new nge Act. \Box				

Item 2.02 Results of Operations and Financial Condition.

On November 6, 2024, Ionis Pharmaceuticals, Inc. (the "Company") issued a press release announcing the Company's financial results for the quarter ended September 30, 2024. In addition to disclosing results that are determined in accordance with Generally Accepted Accounting Principles ("GAAP"), the Company also discloses pro forma or non-GAAP results of operations, which are adjusted from GAAP to exclude non-cash compensation expense related to equity awards and the related tax effects. The Company is presenting pro forma information excluding non-cash compensation expense and the related tax effects because the Company believes it better enables financial statement users to assess and compare its historical performance and project its future operating results and cash flows. A copy of the release is furnished with this report as an exhibit pursuant to "Item 2.02. Results of Operations and Financial Condition" of Form 8-K in accordance with SEC Release Nos. 33-8216 and 34-47583.

The information in this Current Report on Form 8-K and the Exhibit attached hereto shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "*Exchange Act*") or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Exchange Act, regardless of any general incorporation language in such filing.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
<u>99.1</u>	Press Release dated November 6, 2024.

104 Cover Page Interactive Data File (embedded within the Inline XBRL document).

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IONIS PHARMACEUTICALS, INC.

Dated: November 6, 2024

By: /s/ Patrick R. O'Neil
Patrick R. O'Neil

Executive Vice President, Chief Legal Officer and General Counsel



Ionis reports third quarter 2024 financial results

WAINUATM U.S. launch progressing well; approved in UK; positive CHMP opinion

Olezarsen FCS PDUFA December 19, 2024

Donidalorsen HAE PDUFA August 21, 2025; EU regulatory submission in process

On track to achieve 2024 P&L financial guidance; increased 2024 cash guidance

CARLSBAD, Calif., November 6, 2024 – Ionis Pharmaceuticals, Inc. (Nasdaq: IONS) (the "Company") today reported financial results for the third quarter of 2024.

"Today, we stand on the cusp of a new era for Ionis, with our first co-commercialization launch proceeding well with WAINUA, our first planned independent launch fast approaching and continued strong progress across our rich pipeline. With an upcoming December FDA action date, we are ready to independently bring olezarsen to people with familial chylomicronemia syndrome, a serious rare disease with no approved treatments in the U.S. We are similarly well positioned for our second independent launch for donidalorsen, which we believe could become a preferred treatment choice for people with hereditary angioedema, with an FDA action date of August 21, 2025," said Brett P. Monia, Ph.D., chief executive officer of Ionis. "In parallel, we are making great progress across the rest of our rich Phase 3 pipeline. We expect Phase 3 results supporting olezarsen's second indication in severe hypertriglyceridemia and pelacarsen in Lp(a)-driven cardiovascular disease next year, as well as Phase 3 results supporting eplontersen's second indication in ATTR cardiomyopathy in the second half of 2026. We are also advancing our next wave of potentially transformational wholly owned medicines, including ION582 for Angelman syndrome, which we expect to enter Phase 3 development in the first half of next year following our positive end of Phase 2 discussion with the FDA. Our recent achievements, together with our advancing and expanding pipeline, position Ionis to deliver on our goal to bring a steady cadence of transformational medicines to people with serious diseases."

Third Quarter 2024 Summary Financial Results⁽¹⁾:

	Three r end Septem	led			Nine n end Septem	led	
	 2024		2023		2024		2023
			(amounts i	n mi	llions)		
Total revenue	\$ 134	\$	144	\$	479	\$	463
Operating expenses	\$ 282	\$	287	\$	843	\$	811
Operating expenses on a non-GAAP basis	\$ 250	\$	261	\$	749	\$	732
Loss from operations	\$ (148)	\$	(143)	\$	(364)	\$	(348)
Loss from operations on a non-GAAP basis	\$ (116)	\$	(117)	\$	(270)	\$	(269)

(1) Reconciliation of GAAP to non-GAAP basis contained later in this release.

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Financial Highlights

- Revenue for the three and nine months ended September 30, 2024 decreased by 7% and increased by 3% compared to the same periods last year, respectively. Ionis continued to generate revenue from diverse sources, including a new source of royalty revenue with the launch of WAINUA in the U.S in the first quarter
- Operating expenses for the three and nine months ended September 30, 2024 increased as planned compared to the same periods last year, excluding certain one-time costs in 2023, reflecting continued investments in late-stage development, including WAINUA for ATTR cardiomyopathy (ATTR-CM) and olezarsen for severe hypertriglyceridemia (sHTG), and commercialization efforts for WAINUA, olezarsen and donidalorsen
- Reaffirmed 2024 P&L financial guidance, increased cash guidance to \$2.2 billion reflecting proceeds from equity offering

Recent Marketed Medicines Highlights

- WAINUA (WAINZUA in Europe) for the treatment of adults with polyneuropathy of hereditary transthyretin-mediated amyloidosis (ATTRv-PN) achieved multiple commercial and regulatory milestones:
 - o Generated sales of \$23 million and \$44 million resulting in royalty revenue of \$5 million and \$10 million in the three and nine months ended September 30, 2024, respectively
 - o Received positive Committee for Medicinal Products for Human Use (CHMP) opinion from European Medicines Agency (EMA) for the treatment of hereditary transthyretin-mediated amyloidosis in adult patients with stage 1 or stage 2 polyneuropathy
 - o Approved in UK by the Medicines and Healthcare products Regulatory Agency (MHRA) with an accelerated National Institute for Health and Care Excellence (NICE) recommendation; earning \$30 million from AstraZeneca
 - o Launch underway in Canada, following approval and reimbursement from Health Canada
- SPINRAZA® (nusinersen) for the treatment of spinal muscular atrophy (SMA) generated global sales of \$381 million and \$1.2 billion resulting in royalty revenue of \$57 million and \$152 million in the three and nine months ended September 30, 2024, respectively
 - o Positive Phase 2/3 DEVOTE study data presented from higher dose nusinersen; global regulatory applications planned
- QALSODY® (tofersen) granted marketing approval in China for the treatment of SOD1-ALS

Recent Late-Stage Pipeline Highlights

- Olezarsen positioned to potentially treat two patient populations with urgent unmet need, familial chylomicronemia syndrome (FCS) and severe hypertriglyceridemia (sHTG):
 - o NDA for patients with FCS under FDA Priority Review with a PDUFA date of December 19, 2024
 - o Marketing authorization application (MAA) under regulatory review by the EMA
 - o Ongoing pivotal development program for sHTG on track for data in H2:2025
- Donidalorsen Phase 3 data position it to potentially launch next year as the first RNA-targeted prophylactic treatment for people with hereditary angioedema (HAE):

- FDA accepted the NDA for patients with HAE with a PDUFA date of August 21, 2025; Otsuka, Europe and Asia Pacific partner, preparing to submit MAA
- o Presented positive Phase 2 open label extension (OLE) study data in patients treated up to three years with every four weeks or every eight weeks dosing
- Zilganersen Phase 3 study fully enrolled as a potential treatment for Alexander disease; on track for data in 2025
 - o Granted Fast Track designation by the FDA
- ION582 achieved important clinical and regulatory milestones enabling initiation of Phase 3 development in Angelman syndrome (AS) in H1:2025:
 - o Presented positive Phase 1/2 data in patients with AS at Angelman Syndrome Foundation (ASF) Family Conference
 - o Completed positive End-of-Phase 2 discussion with FDA, included alignment on Phase 3 design
- Reported positive data from the Phase 2 study of IONIS-FB-L_{Rx} in patients with immunoglobulin A nephropathy (IgAN); Roche continues to advance IONIS-FB-L_{Rx} in the Phase 3 IMAGINATION study

Recent Other Pipeline Updates

- Sapablursen for the treatment of polycythemia vera granted orphan drug designation by FDA; enrollment complete in Phase 2 IMPRSSION study with data expected in 2025
- IONIS-MAPT_{Rx} (BIIB080) enrollment complete in Phase 2 CELIA study in patients with early Alzheimer's disease (AD); data expected in 2026
- Initiated first in human studies with multiple medicines from neurological disease pipeline:
 - o Phase 1/2 Orbit study of ION356 (PLP1) in patients with Pelizaeus-Merzbacher disease (PMD)
 - o Phase 1/2 HERO study of ION269 (APP), for the potential treatment of Alzheimer's disease (AD), which is initially being evaluated in patients with Down syndrome (DS) who have a genetic risk for developing AD
 - o Phase 1/2 ATTUNE study of ION440 (MECP2) in patients with MECP2 duplication syndrome

Third Quarter 2024 Financial Results

"This year has been marked by strong delivery on our pipeline and business goals, which position Ionis to deliver on our vision of bringing a steady cadence of innovative medicines to patients in need. Fully realizing these significant opportunities requires substantial investment. As a result, we recently executed an equity offering that extends our cash runway, enabling us to continue to invest in the numerous attractive opportunities ahead of us, including our near-term commercial launches with multi-billion-dollar revenue potential and our rich late and mid-stage pipeline," said Elizabeth L. Hougen, chief financial officer of Ionis. "Looking beyond this year, we will continue to invest in go-to-market preparations for our planned olezarsen and donidalorsen launches. Additionally, with our increased confidence in the potential of WAINUA and olezarsen to address broader patient populations, we plan to scale our capabilities in line with the significant potential of these important medicines. At the same time, we are investing in our next wave of medicines, including pre-commercialization activities and Phase 3 development for ION582 for Angelman syndrome and zilganersen for Alexander disease. We expect our investments today will position Ionis for sustainable growth for years to come."

Revenue

Ionis' revenue was comprised of the following:

		Three mor	nths endenber 30,	d	N	ine mon Septem		
	20)24	20)23	202	4	2	2023
Revenue:	<u>-</u>		(a	amounts in	millions)			
Commercial revenue:								
SPINRAZA royalties	\$	57	\$	67	\$	152	\$	179
WAINUA royalties		5		-		10		-
Other commercial revenue:								
TEGSEDI and WAYLIVRA revenue, net		9		8		26		25
Licensing and other royalty revenue		5		9		19		26
Total commercial revenue	•	76		84		207		230
Research and development revenue:								
Amortization from upfront payments		28		18		105		47
Milestone payments		16		16		76		90
License fees		-		5		38		25
Other services		1		5		18		11
Collaborative agreement revenue		45		44		237		173
WAINUA joint development revenue		13		16		35		60
Total research and development revenue		58		60		272		233
Total revenue	\$	134	\$	144	\$	479	\$	463

Commercial revenue for the three and nine months ended September 30, 2024 included a new source of royalty revenue with the launch of WAINUA in the U.S. in late January 2024. Ionis' commercial revenue for the three and nine months ended September 30, 2024 and 2023 also included royalties from the net sales of QALSODY, which Biogen launched in the U.S. in the second quarter of 2023 and in the EU in the second quarter of 2024. SPINRAZA product sales for the three months ended September 30, 2024 compared to the same period last year increased slightly in the U.S. and decreased outside of the U.S. primarily due to an annual order from a single country that did not recur in 2024.

R&D revenue was relatively consistent for the three months ended September 30, 2024 compared to the same period last year. R&D revenue increased for the nine months ended September 30, 2024 compared to the same period last year primarily due to the amortization of upfront payments from the new collaborations with Roche and Novartis that Ionis entered into during the second half of last year. In addition, license fees increased year over year as a result of new collaborations Ionis entered into during the second quarter of 2024, including the expanded donidalorsen licensing agreement with Otsuka, which now includes the Asia-Pacific region in addition to Europe. These increases were partially offset by the decrease in WAINUA joint development revenue, which decreased as development activities relating to ATTRv-PN wound down with the launch of WAINUA for this indication.

Operating Expenses

Ionis' operating expenses, excluding one-time costs associated with a lease exit in the third quarter of 2023, increased for the three and nine months ended September 30, 2024 compared to the same periods in 2023, consistent with expectations. SG&A expenses increased year over year primarily due to the launch of WAINUA in the U.S. and launch preparation activities for olezarsen and donidalorsen, including establishing the field team for olezarsen in the second quarter of 2024. R&D expenses were essentially flat for the three and nine months ended September 30, 2024 compared to the same periods last year as several late-stage studies have ended.

Balance Sheet

As of September 30, 2024, Ionis' cash, cash equivalents and short-term investments increased to \$2.5 billion compared to \$2.3 billion at December 31, 2023. In September 2024, Ionis issued 11.5 million shares of its common stock at a public offering price of \$43.50 per share that generated gross proceeds of \$500 million, before deducting underwriting discounts and commissions and other offering expenses payable by Ionis. The Company plans to continue deploying its capital resources toward growth opportunities, and projects to end 2024 with \$2.2 billion in cash, cash equivalents and short-term investments. Ionis' working capital also increased over the same period primarily due to the Company's higher cash and short-term investments balance. As a result of Ionis' advancing pipeline that has delivered several positive data readouts, Ionis expects to make increased investments in the years ahead with the goal to realize the value of these opportunities, with a focus on its wholly owned late-stage and next wave of innovative medicines.

Webcast

Management will host a conference call and webcast to discuss Ionis' third quarter 2024 results at 11:30 a.m. Eastern time on Wednesday, November 6, 2024. Interested parties may access the webcast here. A webcast replay will be available for a limited time at the same address. To access the Company's third quarter 2024 earnings slides click here.

For more information about SPINRAZA and QALSODY, visit https://www.galsody.com/, respectively. QALSODY is approved under accelerated approval based on reduction in plasma neurofilament light chain (NfL) observed in patients treated with QALSODY. Continued approval may be contingent upon verification of clinical benefit in confirmatory trial(s).

INDICATION for WAINUATM (eplontersen)

WAINUA injection, for subcutaneous use, 45 mg is indicated for the treatment of the polyneuropathy of hereditary transthyretin-mediated amyloidosis in adults.

IMPORTANT SAFETY INFORMATION for WAINUATM (eplontersen)

WARNINGS AND PRECAUTIONS

Reduced Serum Vitamin A Levels and Recommended Supplementation WAINUA leads to a decrease in serum vitamin A levels. Supplement with recommended daily allowance of vitamin A. Refer patient to an ophthalmologist if ocular symptoms suggestive of vitamin A deficiency occur.

ADVERSE REACTIONS

Most common adverse reactions (≥9% in WAINUA-treated patients) were vitamin A decreased (15%) and vomiting (9%).

Please see link to U.S. Full Prescribing Information for WAINUA.

About Ionis Pharmaceuticals, Inc.

For three decades, Ionis has invented medicines that bring better futures to people with serious diseases. Ionis currently has five marketed medicines and a leading pipeline in neurology, cardiology, and other areas of high patient need. As the pioneer in RNA-targeted medicines, Ionis continues to drive innovation in RNA therapies in addition to advancing new approaches in gene editing. A deep understanding of disease biology and industry-leading technology propels our work, coupled with a passion and urgency to deliver life-changing advances for patients. To learn more about Ionis, visit Ionis.com and follow us on X (Twitter), LinkedIn and Instagram.

Ionis' Forward-looking Statement

This press release includes forward-looking statements regarding Ionis' business, financial guidance and the therapeutic and commercial potential of our commercial medicines, additional medicines in development and technologies. Any statement describing Ionis' goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties including those inherent in the process of discovering, developing and commercializing medicines that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such medicines. Ionis' forward-looking statements also involve assumptions that, if they never materialize or prove correct, could cause its results to differ materially from those expressed or implied by such forward-looking statements. Although Ionis' forward-looking statements reflect the good faith judgment of its management, these statements are based only on facts and factors currently known by Ionis. Except as required by law, we undertake no obligation to update any forward-looking statements for any reason. As a result, you are cautioned not to rely on these forward-looking statements. These and other risks concerning Ionis' programs are described in additional detail in Ionis' annual report on Form 10-K for the year ended December 31, 2023, and most recent Form 10-Q, which are on file with the Securities and Exchange Commission. Copies of these and other documents are available from the Company.

In this press release, unless the context requires otherwise, "Ionis," "Company," "we," "our" and "us" all refer to Ionis Pharmaceuticals and its subsidiaries.

Ionis Pharmaceuticals® is a registered trademark of Ionis Pharmaceuticals, Inc. Akcea Therapeutics® is a registered trademark of Akcea Therapeutics, Inc. TEGSEDI® is a registered trademark of Akcea Therapeutics, Inc. WAYLIVRA® is a registered trademark of Akcea Therapeutics, Inc. SPINRAZA® and QALSODY® are registered trademarks of Biogen. WAINUATM is a registered trademark of the AstraZeneca group of companies.

Ionis Investor Contact:

D. Wade Walke, Ph.D. IR@ionis.com 760-603-2331

Ionis Media Contact:

Hayley Soffer media@ionis.com 760-603-4679

IONIS PHARMACEUTICALS, INC. SELECTED FINANCIAL INFORMATION

Condensed Consolidated Statements of Operations (In Millions, Except Per Share Data)

		Three months ended September 30,			nths ended nber 30,
		2024	2023	2024	2023
D.			(unau	idited)	
Revenue:					
Commercial revenue:	¢	57	\$ 67	¢ 150	¢ 170
SPINRAZA royalties WAINUA royalties	\$	5	\$ 67	\$ 152 10	\$ 179
Other commercial revenue		14	- 17	45	51
Total commercial revenue		76	84	207	230
Research and development revenue:		76	84	207	230
Collaborative agreement revenue		45	44	237	173
WAINUA joint development revenue		13	16	35	60
Total research and development revenue		58	60	272	233
Total research and development revenue		134	144	479	463
	<u> </u>	134	144	4/9	403
Expenses: Cost of sales		1	2	7	6
Research, development and patent		220	215	656	643
Selling, general and administrative		61	70	180	162
Total operating expenses		282	287	843	811
Loss from operations		(148)	(143)	(364)	(348)
Other income (expense):					
Interest expense related to the sale of future royalties		(19)	(18)	(55)	(51)
Other income, net		23	20	66	68
Loss before income tax benefit (expense)		(144)	(141)	(353)	(331)
Income tax benefit (expense)		4	(6)	3	(26)
meone an ochem (expense)		<u>'</u>	(0)		(20)
Net loss	\$	(140)	\$ (147)	\$ (350)	\$ (357)
Basic and diluted net loss per share	\$	(0.95)	\$ (1.03)	\$ (2.38)) \$ (2.50)
Shares used in computing basic and diluted net loss per share	4	149	143	147	143
Shares used in computing basic and unuted net loss per share	<u> </u>	149			143
	7				

IONIS PHARMACEUTICALS, INC. Reconciliation of GAAP to Non-GAAP Basis:

Condensed Consolidated Operating Expenses, Loss From Operations, and Net Loss (In Millions)

	Three months ended September 30,		Nine month Septembe				
		2024	2023		2024		2023
			(unau	dited	.)		
As reported research, development and patent expenses according to GAAP	\$	220	\$ 215	\$	656	\$	643
Excluding compensation expense related to equity awards		(22)	 (19)		(67)		(58)
Non-GAAP research, development and patent expenses	\$	198	\$ 196	\$	589	\$	585
As reported selling, general and administrative expenses according to							
GAAP	\$	61	\$ 70	\$	180	\$	162
Excluding compensation expense related to equity awards		(10)	(7)		(26)		(22)
Non-GAAP selling, general and administrative expenses	\$	51	\$ 63	\$	154	\$	140
As reported operating expenses according to GAAP	\$	282	\$ 287	\$	843	\$	811
Excluding compensation expense related to equity awards		(32)	(26)		(94)		(79)
Non-GAAP operating expenses	\$	250	\$ 261	\$	749	\$	732
As reported loss from operations according to GAAP	\$	(148)	\$ (143)	\$	(364)	\$	(348)
Excluding compensation expense related to equity awards		(32)	(26)		(94)		(79)
Non-GAAP loss from operations	\$	(116)	\$ (117)	\$	(270)	\$	(269)
As reported net loss according to GAAP	\$	(140)	\$ (147)	\$	(350)	\$	(357)
Excluding compensation expense related to equity awards and related tax effects		(32)	(26)		(94)		(79)
Non-GAAP net loss	\$	(108)	\$ (121)	\$	(256)	\$	(278)

Reconciliation of GAAP to Non-GAAP Basis

As illustrated in the Selected Financial Information in this press release, non-GAAP operating expenses, non-GAAP loss from operations, and non-GAAP net loss were adjusted from GAAP to exclude compensation expense related to equity awards and the related tax effects. Compensation expense related to equity awards are non-cash. These measures are provided as supplementary information and are not a substitute for financial measures calculated in accordance with GAAP. Ionis reports these non-GAAP results to better enable financial statement users to assess and compare its historical performance and project its future operating results and cash flows. Further, the presentation of Ionis' non-GAAP results is consistent with how Ionis' management internally evaluates the performance of its operations.

IONIS PHARMACEUTICALS, INC. Condensed Consolidated Balance Sheets (In Millions)

	September 30 2024		
	(unaudited)		
Assets:			
Cash, cash equivalents and short-term investments	\$ 2,48		2,331
Contracts receivable	1	}	98
Other current assets	21	3	213
Property, plant and equipment, net	8	3	71
Right-of-use assets	16	1	172
Other assets	12)	105
Total assets	\$ 3,08	\$	2,990
Liabilities and stockholders' equity:			
Current portion of deferred contract revenue	\$ 7	5 \$	151
0.125% convertible senior notes, net – short-term	4	1	44
Other current liabilities	18	1	253
1.75% convertible senior notes, net	56	1	562
0% convertible senior notes, net	62	3	625
Liability related to sale of future royalties, net	53	3	514
Long-term lease liabilities	16	}	171
Long-term obligations, less current portion	4	3	42
Long-term deferred contract revenue	17	1	241
Total stockholders' equity	66	2	387
Total liabilities and stockholders' equity	\$ 3,08	1 \$	2,990

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Key 2024 Value Driving Events $^{(1)}$

New Product Launches					
Program	Indication		Achieved		
WAINUA	ATTRv-PN		•		
Olezarsen	FCS				
QALSODY (EU)	SOD1-ALS		•		

Regulatory Actions			
Program	Indication	Regulatory Action	Achieved
		Additional OUS filings	•
Eplontersen	ATTRv-PN	EMA approval decision	
		Additional OUS approval decision(s)	•
		FDA approval decision	
Olezarsen	FCS	NDA filing	•
Olezaiseli	rcs	EU filing	•
		Canada filing	
Donidalorsen	HAE	NDA filing	•
OALSODY	SOD1-ALS	EMA approval decision	•
QALSODY	SODI-ALS	China approval	•

Key Phase 3 Clinical Data Events						
Program	Indication	Event	Achieved			
Olezarsen	FCS	Balance study full data	•			
Donidalorsen	HAE	OASIS-HAE topline data	•			
Donidalorsen	HAE	OASIS-HAE full data	•			
Donidalorsen	HAE	OASIS-Plus: OLE + Switch data	•			
Nusinersen	SMA	DEVOTE study data (higher dose)	•			

Key Phase 2 Clinical Data Events					
Program	Indication	Event	Achieved		
Donidalorsen	HAE	3-year Phase 2 OLE data	•		
IONIS-FB-L _{Rx}	IgAN	Phase 2 data	•		
IONIS-FB-L _{Rx}	GA	GOLDEN study data			
ION224 (DGAT2)	NASH	Phase 2 data	•		
ION582 (UBE3A)	Angelman syndrome	HALOS study data	•		
ION541 (ATXN2)	ALS	ALSpire study data			
Sapablursen (TMPRSS6)	Polycythemia vera	IMPRSSION study full enrollment	•		
IONIS-MAPT _{Rx} (Tau)	Alzheimer's disease	CELIA study full enrollment	•		

- (1) Timing expectations based on current assumptions and subject to change.
- Milestone achieved
 - -- Milestone achieved, however program discontinued

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