



Better Health, Brighter Future

# FY2019 Q3 DATABOOK

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Quarterly Announcements / Presentations

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# I. Financial Results

## 1. Revenue by Region

■ Year To Date

(Bn JPY)	Reported				Underlying
	FY18 Q3 YTD	FY19 Q3 YTD	YOY		YOY
Total revenue	1,380.0	2,519.5	1,139.5	82.6%	-1.2%
Japan	444.0	467.4	23.4	5.3%	-3.8%
% of revenue	32.2%	18.6%	-13.6pt		
United States	495.3	1,215.7	720.3	145.4%	-3.6%
% of revenue	35.9%	48.3%	12.4pt		
Europe and Canada	244.9	483.5	238.7	97.5%	0.7%
% of revenue	17.7%	19.2%	1.4pt		
Growth and Emerging Markets	195.7	352.8	157.1	80.3%	7.9%
% of revenue	14.2%	14.0%	-0.2pt		
Russia/CIS	44.3	59.3	15.0	33.8%	3.7%
% of revenue	3.2%	2.4%	-0.9pt		
Latin America	54.5	111.7	57.2	104.9%	13.0%
% of revenue	4.0%	4.4%	0.5pt		
Asia	75.9	127.3	51.4	67.8%	12.0%
% of revenue	5.5%	5.1%	-0.4pt		
Other	21.1	54.6	33.5	159.0%	-5.4%
% of revenue	1.5%	2.2%	0.6pt		
Of which royalty / service income	46.6	66.2	19.6	42.0%	

\*1 Revenue amount is classified into countries or regions based on the customer location.

\*2 Other region includes Middle East, Oceania and Africa.

## 1. Revenue by Region (continued)

### ◆Quarterly

(Bn JPY)	Reported											
	FY18				FY19							
	Q1	Q2	Q3	Q4	Q1	YOY	Q2	YOY	Q3	YOY	Q4	YOY
Total revenue	449.8	430.8	499.4	717.2	849.1	88.8%	811.0	88.3%	859.3	72.1%		
Japan	144.3	130.0	169.8	127.0	152.3	5.6%	147.1	13.2%	168.0	-1.1%		
% of revenue	32.1%	30.2%	34.0%	17.7%	17.9%		18.1%		19.5%			
United States	161.1	160.0	174.3	333.6	415.7	158.0%	390.2	143.9%	409.8	135.2%		
% of revenue	35.8%	37.1%	34.9%	46.5%	49.0%		48.1%		47.7%			
Europe and Canada	79.1	79.5	86.3	160.8	165.2	108.8%	156.6	97.0%	161.7	87.4%		
% of revenue	17.6%	18.5%	17.3%	22.4%	19.5%		19.3%		18.8%			
Growth and Emerging Markets	65.4	61.3	69.1	95.8	115.9	77.3%	117.2	91.0%	119.8	73.5%		
% of revenue	14.5%	14.2%	13.8%	13.4%	13.6%		14.4%		13.9%			
Russia/CIS	14.1	13.4	16.8	15.4	19.0	34.6%	17.9	33.7%	22.4	33.1%		
% of revenue	3.1%	3.1%	3.4%	2.2%	2.2%		2.2%		2.6%			
Latin America	18.5	16.2	19.8	33.6	37.4	102.2%	38.4	137.3%	35.9	81.2%		
% of revenue	4.1%	3.8%	4.0%	4.7%	4.4%		4.7%		4.2%			
Asia	26.9	25.0	24.0	29.6	41.0	52.4%	42.9	71.5%	43.4	81.3%		
% of revenue	6.0%	5.8%	4.8%	4.1%	4.8%		5.3%		5.1%			
Other	5.8	6.8	8.5	17.2	18.5	-	18.0	165.9%	18.1	113.6%		
% of revenue	1.3%	1.6%	1.7%	2.4%	2.2%		2.2%		2.1%			
Of which royalty / service income	13.0	11.9	21.7	24.4	27.1	108.5%	20.0	68.6%	19.0	-12.4%		

\*1 Revenue amount is classified into countries or regions based on the customer location. \*2 Other region includes Middle East, Oceania and Africa.

## 2. Product Sales Analysis (vs PY Reported Actual)

(Sales amount includes royalty income and service income)

■ Year To Date

(Bn JPY)	Reported			US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
	FY18Q3 YTD	FY19Q3 YTD	YOY										
<b>GI</b>	<b>392.9</b>	<b>533.2</b>	<b>35.7%</b>	<b>314.9</b>	<b>48.2%</b>	<b>60.6</b>	<b>28.6%</b>	<b>99.6</b>	<b>13.4%</b>	<b>46.9</b>	<b>3.4%</b>	<b>11.1</b>	-
Entyvio	201.0	263.5	31.1%	184.6	34.8%	4.4	-	64.2	14.2%	10.4	40.6%		
Dexilant	54.9	48.0	-12.5%	32.4	-19.7%			5.8	5.0%	9.9	8.9%		
Pantoprazole	46.9	38.4	-18.3%	2.3	-44.3%			17.4	-17.8%	18.7	-13.8%		
Takecab-F	44.4	55.7	25.4%			55.3	24.8%			0.4	-		
Gattex/Revestive		46.9	-	40.5	-			6.0	-	0.4	-		
Pentasa		20.2	-	20.2	-								
Lialda/Mezavan *1		18.2	-	7.1	-							11.1	-
Amitiza	25.9	22.1	-14.5%	21.9	-15.1%			0.0	-95.8%	0.2	-		
Resolor/Motegrity		4.7	-	2.3	-			2.3	-	0.1	-		
Other	19.8	15.4	-22.0%	3.7	-30.3%	1.0	-59.5%	4.0	-19.9%	6.8	-4.1%		
<b>Rare Metabolic</b>		<b>132.3</b>	-	<b>37.9</b>	-	<b>2.4</b>	-	<b>31.5</b>	-	<b>21.9</b>	-	<b>38.5</b>	-
Elaprase		52.4	-	14.8	-	1.2	-	18.8	-	17.5	-		
Replagal *1		38.5	-									38.5	-
Vpriv		28.4	-	12.2	-	1.2	-	10.6	-	4.3	-		
Natpara		13.0	-	10.9	-			2.0	-	0.1	-		
<b>Rare Hematology</b>		<b>259.2</b>	-	<b>108.1</b>	-	<b>20.8</b>	-	<b>65.0</b>	-	<b>65.3</b>	-		
Advate		123.1	-	53.9	-	5.8	-	33.4	-	30.0	-		
Adynovate		44.8	-	22.8	-	11.4	-	8.2	-	2.4	-		
FEIBA *2		39.6	-	7.8	-	1.4	-	11.2	-	19.2	-		
Hemofil/Immunate/ Immune *2		17.9	-	3.4	-			4.7	-	9.9	-		
Other PDT Products *2		2.9	-	0.0	-			2.4	-	0.5	-		
Other		30.9	-	20.1	-	2.3	-	5.1	-	3.4	-		
<b>Hereditary Angioedema</b>		<b>94.0</b>	-	<b>75.8</b>	-	<b>0.6</b>	-	<b>15.0</b>	-	<b>2.6</b>	-		
Firazyr		22.7	-	12.8	-	0.6	-	6.9	-	2.4	-		
Takhzyro		48.8	-	45.8	-			3.1	-	0.0	-		
Kalbitor		3.5	-	3.5	-			0.0	-		-		
Cinryze *2		18.9	-	13.7	-			5.0	-	0.2	-		

\*1 License-out product : Regional breakdown is not available due to contract.

\*2 PDT products

\*3 GEM: Growth and Emerging Markets, which include Russia/CIS, Latin America, Asia, Middle East, Oceania and Africa

Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

■ Year To Date

(Bn JPY)	Reported			US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
	FY18Q3 YTD	FY19Q3 YTD	YOY										
<b>PDT Immunology</b>	<b>12.5</b>	<b>296.6</b>	-	<b>196.8</b>	-							<b>99.8</b>	-
Immunoglobulin *2	9.2	225.4	-	169.5	-							55.8	-
Albumin *2	1.3	49.7	-	10.9	-							38.8	-
Other *2	2.1	21.5	-	16.3	-							5.1	147.5%
<b>Oncology</b>	<b>306.6</b>	<b>317.9</b>	<b>3.7%</b>	<b>161.2</b>	<b>2.4%</b>	<b>59.3</b>	<b>8.3%</b>	<b>50.8</b>	<b>4.5%</b>	<b>35.6</b>	<b>41.4%</b>	<b>11.2</b>	<b>-46.2%</b>
Velcade *1	100.3	90.8	-9.5%	82.4	0.5%							8.4	-54.1%
Leuprorelin	84.6	82.7	-2.3%	15.2	-10.3%	32.0	0.9%	22.2	-12.4%	13.4	24.6%		
Ninlaro	46.5	58.1	25.0%	39.4	10.8%	3.8	18.0%	8.7	45.2%	6.1	-		
Adcetris	32.0	39.5	23.2%			5.9	60.5%	17.8	9.7%	15.4	26.8%		
Iclusig *1	21.6	22.8	5.7%	20.1	4.7%							2.7	14.2%
Alunbrig	3.8	5.1	36.4%	3.7	1.3%			1.1	-	0.3	-		
Vectibix	16.2	17.6	8.8%			17.6	8.8%						
Other	1.6	1.3	-17.2%	-0.0	-			0.9	-4.4%	0.4	-29.3%		
<b>Neuroscience</b>	<b>73.7</b>	<b>330.5</b>	-	<b>258.7</b>	-	<b>31.1</b>	<b>43.9%</b>	<b>35.5</b>	-	<b>5.2</b>	-		
Vyvanse		206.8	-	178.4	-			23.4	-	5.0	-		
Trintellix	44.6	54.3	21.7%	54.1	21.2%	0.2	-						
Adderall XR		15.0	-	13.7	-			1.2	-				
Rozerem	14.9	11.7	-21.2%	3.2	-56.6%	8.5	14.2%			0.0	-22.7%		
Reminyl	13.0	13.9	7.0%			13.8	6.7%	0.0	-				
Intuniv		11.0	-	0.7	-	4.5	-	5.6	-	0.1	-		
Other	1.2	17.9	-	8.5	-	4.0	-	5.3	-	0.0	-		
<b>Other</b>	<b>594.3</b>	<b>555.8</b>	<b>-6.5%</b>										
Azilva	55.7	59.1	6.1%			59.1	6.1%						
Nesina	42.4	44.1	3.8%	5.3	16.2%	21.8	-1.6%	8.0	-1.3%	8.9	17.8%		
Uloric	40.5	15.5	-61.8%	14.7	-63.0%			0.4	-36.4%	0.4	71.6%		
Colcrys	23.6	19.8	-16.4%	19.8	-16.4%								
Enbrel	27.9	24.0	-13.9%			24.0	-13.9%						
Lotriga	24.3	24.8	2.1%			24.8	2.1%						

\*1 License-out product : Regional breakdown is not available due to contract.

\*2 PDT products

\*3 GEM: Growth and Emerging Markets, which include Russia/CIS, Latin America, Asia, Middle East, Oceania and Africa

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenktsu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro

## 2. Product Sales Analysis (vs PY Reported Actual) (continued)

(Sales amount includes royalty income and service income)

■ Quarterly (Bn JPY)	Reported											
	FY18				FY19							
	Q1	Q2	Q3	Q4	Q1	YOY	Q2	YOY	Q3	YOY	Q4	YOY
<b>GI</b>	<b>124.0</b>	<b>128.1</b>	<b>140.8</b>	<b>146.5</b>	<b>171.6</b>	<b>38.4%</b>	<b>169.9</b>	<b>32.7%</b>	<b>191.6</b>	<b>36.1%</b>		
Entyvio	61.3	67.1	72.6	68.2	83.9	36.9%	84.5	26.0%	95.1	31.0%		
Dexilant	17.4	17.5	20.0	14.3	15.8	-9.0%	15.3	-12.8%	16.9	-15.2%		
Pantoprazole	16.2	14.5	16.2	14.7	11.6	-28.5%	12.8	-11.3%	13.9	-14.2%		
Takecab-F	14.3	13.0	17.1	13.9	18.3	28.1%	16.7	28.6%	20.7	20.8%		
Gattex/Revestive				12.8	15.1	-	14.1	-	17.7	-		
Pentasa				4.7	6.5	-	6.5	-	7.2	-		
Lialda/Mezavant				3.3	5.6	-	6.7	-	6.0	-		
Amitiza	7.9	8.4	9.6	7.1	7.8	-0.7%	7.3	-13.2%	7.0	-26.9%		
Resolor/Motegrity				0.7	1.4	-	1.3	-	2.0	-		
Other	7.0	7.6	5.2	6.8	5.6	-19.4%	4.7	-38.2%	5.1	-1.9%		
<b>Rare Metabolic</b>				<b>42.3</b>	<b>48.9</b>	-	<b>43.2</b>	-	<b>40.2</b>	-		
Elaprase				15.1	18.8	-	16.7	-	16.8	-		
Replagal				11.4	12.9	-	12.6	-	13.1	-		
Vpriv				8.7	9.3	-	9.4	-	9.7	-		
Natpara				7.1	7.9	-	4.5	-	0.6	-		
<b>Rare Hematology</b>				<b>66.7</b>	<b>89.9</b>	-	<b>84.8</b>	-	<b>84.5</b>	-		
Advate				32.1	42.7	-	40.5	-	39.9	-		
Adynovate				10.7	16.7	-	13.1	-	15.1	-		
FEIBA *1				9.6	13.1	-	14.8	-	11.7	-		
Hemofil/Immunate/ Immunine*1				5.5	6.6	-	5.6	-	5.8	-		
Other PDT Products *1				0.5	0.6	-	0.5	-	1.8	-		
Other				8.2	10.3	-	10.3	-	10.2	-		
<b>Hereditary Angioedema</b>				<b>20.4</b>	<b>31.9</b>	-	<b>28.5</b>	-	<b>33.7</b>	-		
Firazyr				6.4	9.0	-	6.3	-	7.5	-		
Takhzyro				9.7	14.5	-	16.2	-	18.2	-		
Kalbitor				1.2	1.1	-	1.3	-	1.1	-		
Cinryze *1				3.1	7.3	-	4.7	-	6.9	-		

\*1 PDT products

Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

■ Quarterly (Bn JPY)	Reported											
	FY18				FY19							
	Q1	Q2	Q3	Q4	Q1	YOY	Q2	YOY	Q3	YOY	Q4	YOY
<b>PDT Immunology</b>	<b>4.2</b>	3.8	4.5	81.0	<b>90.2</b>	-	<b>101.5</b>	-	<b>104.9</b>	-		
Immunoglobulin *1	3.1	2.8	3.2	64.3	68.0	-	78.5	-	78.9	-		
Albumin *1	0.4	0.4	0.5	11.0	16.1	-	17.9	-	15.7	-		
Other *1	0.6	0.6	0.8	5.6	6.0	-	5.1	-	10.3	-		
<b>Oncology</b>	<b>98.9</b>	<b>99.5</b>	<b>108.2</b>	<b>92.8</b>	<b>106.5</b>	<b>7.6%</b>	<b>108.4</b>	<b>8.9%</b>	<b>103.1</b>	<b>-4.7%</b>		
Velcade	31.4	33.5	35.4	27.5	31.7	1.0%	31.9	-4.7%	27.2	-23.3%		
Leuprorelin	28.6	26.5	29.5	25.4	28.4	-0.9%	28.3	6.7%	26.0	-11.8%		
Ninlaro	14.0	15.4	17.1	15.7	18.3	30.8%	20.0	29.7%	19.8	15.9%		
Adcetris	11.0	10.1	10.9	10.9	12.7	16.4%	13.0	28.3%	13.7	25.2%		
Iclusig	7.0	7.2	7.4	7.1	7.6	9.2%	7.0	-1.7%	8.2	9.6%		
Alunbrig	1.1	1.2	1.5	1.4	1.7	52.8%	1.7	44.2%	1.8	18.4%		
Vectibix	5.4	5.1	5.7	4.3	5.6	3.5%	6.0	17.3%	6.0	6.2%		
Other	0.5	0.5	0.6	0.4	0.4	-9.6%	0.5	-14.4%	0.4	-26.4%		
<b>Neuroscience</b>	<b>24.3</b>	<b>22.1</b>	<b>27.3</b>	<b>81.0</b>	<b>111.9</b>	-	<b>102.0</b>	-	<b>116.7</b>	-		
Vyvanse				49.4	68.8	-	62.7	-	75.3	-		
Trintellix	14.1	13.0	17.5	12.9	17.4	23.4%	17.2	32.2%	19.7	12.4%		
Adderall XR				5.4	5.7	-	4.9	-	4.4	-		
Rozerem	5.2	4.9	4.8	4.2	5.1	-1.6%	3.6	-27.4%	3.1	-36.2%		
Reminyl	4.5	3.9	4.6	3.7	4.8	6.5%	4.2	8.4%	4.9	6.2%		
Intuniv				1.3	4.1	-	4.0	-	2.9	-		
Other	0.5	0.3	0.4	4.0	6.0	-	5.3	-	6.5	-		
<b>Other</b>	<b>198.4</b>	<b>177.2</b>	<b>218.7</b>	<b>186.6</b>	<b>198.3</b>	<b>-0.1%</b>	<b>172.8</b>	<b>-2.5%</b>	<b>184.7</b>	<b>-15.5%</b>		
Azilva	19.4	15.8	20.5	15.0	20.5	5.4%	18.2	15.5%	20.4	-0.5%		
Nesina	14.1	12.7	15.6	12.3	14.6	3.3%	14.0	10.3%	15.5	-1.0%		
Uloric	14.1	12.4	14.0	10.6	12.2	-13.1%	1.8	-85.3%	1.4	-90.1%		
Colcrys	9.2	7.1	7.3	6.4	7.2	-22.4%	6.0	-15.8%	6.6	-9.5%		
Enbrel	9.9	8.2	9.8	7.3	8.7	-12.1%	7.2	-11.6%	8.1	-17.7%		
Lotriga	8.1	7.1	9.0	6.6	8.8	8.1%	7.2	1.2%	8.8	-2.6%		

\*1 PDT products

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenksu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro



## 2. Product Sales Analysis (vs PY Reported Actual) (continued)

(Sales amount includes royalty income and service income)

■ Q1 (Bn JPY)	Reported												
	FY18Q1	FY19Q1	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>GI</b>	<b>124.0</b>	<b>171.6</b>	<b>38.4%</b>	<b>101.3</b>	<b>51.7%</b>	<b>19.9</b>	<b>31.2%</b>	<b>31.9</b>	<b>14.4%</b>	<b>14.7</b>	<b>2.8%</b>	<b>3.9</b>	-
Entyvio	61.3	83.9	36.9%	59.1	40.9%	1.0	-	20.6	19.7%	3.2	47.5%		
Dexilant	17.4	15.8	-9.0%	10.9	-16.1%			1.8	8.5%	3.1	14.0%		
Pantoprazole	16.2	11.6	-28.5%	0.3	-84.9%			5.3	-26.8%	6.0	-14.4%		
Takecab-F	14.3	18.3	28.1%			18.2	27.7%			0.1	-		
Gattex/Revestive		15.1	-	13.0	-			2.0	-	0.1	-		
Pentasa		6.5	-	6.5	-								
Lialda/Mezavan *1		5.6	-	1.7	-							3.9	-
Amitiza	7.9	7.8	-0.7%	7.7	-1.4%			0.0	-88.1%	0.1	-		
Resolor/Motegrity		1.4	-	0.5	-			0.8	-	0.0	-		
Other	7.0	5.6	-19.4%	1.6	-22.9%	0.6	-27.8%	1.4	-20.3%	2.1	-12.4%		
<b>Rare Metabolic</b>		<b>48.9</b>	-	<b>16.0</b>	-	<b>0.8</b>	-	<b>10.9</b>	-	<b>8.2</b>	-	<b>12.9</b>	-
Elaprase		18.8	-	4.9	-	0.4	-	6.5	-	7.0	-		
Replagal *1		12.9	-									12.9	-
Vpriv		9.3	-	4.0	-	0.4	-	3.8	-	1.1	-		
Natpara		7.9	-	7.1	-			0.7	-	0.0	-		
<b>Rare Hematology</b>		<b>89.9</b>	-	<b>36.2</b>	-	<b>7.1</b>	-	<b>22.7</b>	-	<b>23.9</b>	-		
Advate		42.7	-	17.7	-	2.1	-	12.5	-	10.5	-		
Adynovate		16.7	-	7.6	-	3.8	-	2.4	-	2.8	-		
FEIBA *2		13.1	-	2.7	-	0.4	-	4.1	-	5.8	-		
Hemofil/Immunate/ Immunine *2		6.6	-	1.3	-			1.7	-	3.5	-		
Other PDT Products *2		0.6	-	0.0	-			0.4	-	0.2	-		
Other		10.3	-	7.0	-	0.8	-	1.5	-	1.1	-		
<b>Hereditary Angioedema</b>		<b>31.9</b>	-	<b>26.2</b>	-	<b>0.1</b>	-	<b>4.8</b>	-	<b>0.7</b>	-		
Firazyr		9.0	-	5.9	-	0.1	-	2.3	-	0.6	-		
Takhzyro		14.5	-	13.7	-			0.8	-				
Kalbitor		1.1	-	1.1	-								
Cinryze *2		7.3	-	5.6	-			1.7	-	0.0	-		

\*1 License-out product : Regional breakdown is not available due to contract.

\*2 PDT products

\*3 GEM: Growth and Emerging Markets, which include Russia/CIS, Latin America, Asia, Middle East, Oceania and Africa

Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

■ Q1 (Bn JPY)	Reported												
	FY18Q1	FY19Q1	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>PDT Immunology</b>	<b>4.2</b>	<b>90.2</b>	-	<b>57.4</b>	-							<b>32.7</b>	-
Immunoglobulin *2	3.1	68.0	-	48.0	-							20.0	-
Albumin *2	0.4	16.1	-	4.3	-							11.9	-
Other *2	0.6	6.0	-	5.2	-							0.9	34.8%
<b>Oncology</b>	<b>98.9</b>	<b>106.5</b>	<b>7.6%</b>	<b>53.9</b>	<b>5.8%</b>	<b>19.9</b>	<b>9.3%</b>	<b>16.8</b>	<b>5.8%</b>	<b>11.3</b>	<b>40.5%</b>	<b>4.6</b>	<b>-22.2%</b>
Velcade *1	31.4	31.7	1.0%	28.1	7.1%							3.7	-29.4%
Leuprorelin	28.6	28.4	-0.9%	5.3	-14.5%	11.0	5.1%	7.8	-7.6%	4.2	21.4%		
Ninlaro	14.0	18.3	30.8%	12.6	13.3%	1.3	14.1%	2.7	74.1%	1.6	-		
Adcetris	11.0	12.7	16.4%			1.9	70.7%	5.6	0.7%	5.2	22.3%		
Iclusig *1	7.0	7.6	9.2%	6.7	7.0%							0.9	28.4%
Alunbrig	1.1	1.7	52.8%	1.2	12.6%			0.4	-	0.1	-		
Vectibix	5.4	5.6	3.5%			5.6	3.5%						
Other	0.5	0.4	-9.6%	0.0	-94.4%			0.3	-8.8%	0.2	2.7%		
<b>Neuroscience</b>	<b>24.3</b>	<b>111.9</b>	-	<b>87.6</b>	-	<b>10.4</b>	<b>39.6%</b>	<b>11.8</b>	-	<b>2.0</b>	-		
Vyvanse		68.8	-	59.0	-			7.9	-	1.9	-		
Trintellix	14.1	17.4	23.4%	17.4	23.4%								
Adderall XR		5.7	-	5.3	-			0.4	-				
Rozerem	5.2	5.1	-1.6%	2.3	-16.1%	2.8	14.3%			0.0	-39.4%		
Reminyl	4.5	4.8	6.5%			4.8	6.3%	0.0	-				
Intuniv		4.1	-	0.6	-	1.6	-	1.9	-	0.1	-		
Other	0.5	6.0	-	3.1	-	1.3	145.9%	1.7	-	0.0	-		
<b>Other</b>	<b>198.4</b>	<b>198.3</b>	<b>-0.1%</b>										
Azilva	19.4	20.5	5.4%			20.5	5.4%						
Nesina	14.1	14.6	3.3%	1.6	37.1%	7.6	-2.7%	2.7	4.8%	2.7	4.7%		
Uloric	14.1	12.2	-13.1%	11.9	-13.9%			0.2	-5.9%	0.2	151.7%		
Colcrys	9.2	7.2	-22.4%	7.2	-22.4%								
Enbrel	9.9	8.7	-12.1%			8.7	-12.1%						
Lotriga	8.1	8.8	8.1%			8.8	8.1%						

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\*2 PDT products

\*3 GEM: Growth and Emerging Markets, which include Russia/CIS, Latin America, Asia, Middle East, Oceania and Africa

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenktsu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro

■ Q2 (Bn JPY)	Reported												
	FY18Q2	FY19Q2	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>GI</b>	<b>128.1</b>	<b>169.9</b>	<b>32.7%</b>	<b>99.4</b>	<b>40.6%</b>	<b>18.3</b>	<b>33.8%</b>	<b>32.8</b>	<b>13.4%</b>	<b>15.4</b>	<b>4.4%</b>	<b>4.0</b>	-
Entyvio	67.1	84.5	26.0%	58.6	29.0%	1.5	-	21.1	10.4%	3.4	30.1%		
Dexilant	17.5	15.3	-12.8%	9.9	-21.6%			1.9	8.2%	3.5	10.7%		
Pantoprazole	14.5	12.8	-11.3%	1.0	-29.2%			5.9	-9.5%	6.0	-9.3%		
Takecab-F	13.0	16.7	28.6%			16.6	28.2%			0.1	111.5%		
Gattex/Revestive		14.1	-	12.1	-			2.0	-	0.1	-		
Pentasa		6.5	-	6.5	-								
Lialda/Mezavan *1		6.7	-	2.6	-							4.0	-
Amitiza	8.4	7.3	-13.2%	7.2	-13.7%			-0.0	-	0.1	-		
Resolor/Motegrity		1.3	-	0.5	-			0.7	-	0.0	-		
Other	7.6	4.7	-38.2%	1.0	-66.8%	0.2	-73.2%	1.3	-20.3%	2.3	-3.8%		
<b>Rare Metabolic</b>		<b>43.2</b>	-	<b>12.7</b>	-	<b>0.7</b>	-	<b>10.2</b>	-	<b>7.1</b>	-	<b>12.6</b>	-
Elaprase		16.7	-	4.8	-	0.3	-	6.1	-	5.5	-		
Replagal *1		12.6	-									12.6	-
Vpriv		9.4	-	4.0	-	0.4	-	3.4	-	1.6	-		
Natpara		4.5	-	3.8	-			0.6	-	0.0	-		
<b>Rare Hematology</b>		<b>84.8</b>	-	<b>36.1</b>	-	<b>6.9</b>	-	<b>21.0</b>	-	<b>20.8</b>	-		
Advate		40.5	-	18.0	-	2.0	-	10.9	-	9.6	-		
Adynovate		13.1	-	8.1	-	3.7	-	2.8	-	-1.4	-		
FEIBA *2		14.8	-	2.3	-	0.5	-	3.6	-	8.5	-		
Hemofil/Immunate/ Immune *2		5.6	-	1.2	-			1.5	-	2.9	-		
Other PDT Products *2		0.5	-	-0.0	-			0.4	-	0.1	-		
Other		10.3	-	6.6	-	0.7	-	1.9	-	1.2	-		
<b>Hereditary Angioedema</b>		<b>28.5</b>	-	<b>22.5</b>	-	<b>0.2</b>	-	<b>4.9</b>	-	<b>0.9</b>	-		
Firazyr		6.3	-	3.0	-	0.2	-	2.3	-	0.8	-		
Takhyro		16.2	-	15.2	-			1.0	-	0.0	-		
Kalbitor		1.3	-	1.3	-			0.0	-		-		
Cinryze *2		4.7	-	3.0	-			1.6	-	0.1	-		

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\*2 PDT products

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Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

■ Q2 (Bn JPY)	Reported												
	FY18Q2	FY19Q2	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>PDT Immunology</b>	<b>3.8</b>	<b>101.5</b>	-	<b>69.7</b>	-							<b>31.8</b>	-
Immunoglobulin *2	2.8	78.5	-	61.6	-							16.9	-
Albumin *2	0.4	17.9	-	3.6	-							14.3	-
Other *2	0.6	5.1	-	4.4	-							0.7	15.7%
<b>Oncology</b>	<b>99.5</b>	<b>108.4</b>	<b>8.9%</b>	<b>57.8</b>	<b>12.8%</b>	<b>18.8</b>	<b>12.5%</b>	<b>16.8</b>	<b>6.4%</b>	<b>11.3</b>	<b>31.2%</b>	<b>3.7</b>	<b>-48.2%</b>
Velcade *1	33.5	31.9	-4.7%	29.1	7.4%							2.8	-55.9%
Leuprorelin	26.5	28.3	6.7%	7.1	43.9%	9.6	-0.5%	7.3	-12.7%	4.3	20.2%		
Ninlaro	15.4	20.0	29.7%	13.9	19.1%	1.2	31.3%	2.8	46.7%	2.1	130.7%		
Adcetris	10.1	13.0	28.3%			2.0	90.2%	6.0	15.2%	4.6	19.2%		
Iclusig *1	7.2	7.0	-1.7%	6.1	-4.0%							0.9	17.7%
Alunbrig	1.2	1.7	44.2%	1.2	4.2%			0.4	-	0.1	-		
Vectibix	5.1	6.0	17.3%			6.0	17.3%						
Other	0.5	0.5	-14.4%	-0.0	-			0.3	-3.7%	0.2	-21.7%		
<b>Neuroscience</b>	<b>22.1</b>	<b>102.0</b>	-	<b>79.4</b>	-	<b>10.2</b>	<b>57.8%</b>	<b>11.1</b>	-	<b>1.3</b>	-		
Vyvanse		62.7	-	54.2	-			7.2	-	1.3	-		
Trintellix	13.0	17.2	32.2%	17.2	32.2%								
Adderall XR		4.9	-	4.5	-			0.5	-				
Rozerem	4.9	3.6	-27.4%	0.8	-69.3%	2.7	22.4%			0.0	13.8%		
Reminyl	3.9	4.2	8.4%			4.2	8.0%	0.0	-				
Intuniv		4.0	-	0.2	-	2.0	-	1.7	-	0.0	-		
Other	0.3	5.3	-	2.5	-	1.2	-	1.7	-	0.0	-		
<b>Other</b>	<b>177.2</b>	<b>172.8</b>	<b>-2.5%</b>										
Azilva	15.8	18.2	15.5%			18.2	15.5%						
Nesina	12.7	14.0	10.3%	1.6	-2.1%	6.7	3.6%	2.6	4.3%	3.1	47.9%		
Uloric	12.4	1.8	-85.3%	1.6	-86.9%			0.1	-37.1%	0.1	18.3%		
Colcry	7.1	6.0	-15.8%	6.0	-15.8%								
Enbrel	8.2	7.2	-11.6%			7.2	-11.6%						
Lotriga	7.1	7.2	1.2%			7.2	1.2%						

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Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro

■ Q3

(Bn JPY)	Reported												
	FY18Q3	FY19Q3	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>GI</b>	<b>140.8</b>	<b>191.6</b>	<b>36.1%</b>	<b>114.2</b>	<b>52.3%</b>	<b>22.5</b>	<b>22.5%</b>	<b>34.9</b>	<b>12.4%</b>	<b>16.8</b>	<b>2.8%</b>	<b>3.2</b>	-
Entyvio	72.6	95.1	31.0%	66.9	34.8%	1.9	-	22.5	13.1%	3.8	45.3%		
Dexilant	20.0	16.9	-15.2%	11.6	-21.2%			2.0	-0.7%	3.3	2.7%		
Pantoprazole	16.2	13.9	-14.2%	1.0	43.7%			6.2	-16.3%	6.7	-17.0%		
Takecab-F	17.1	20.7	20.8%			20.5	19.9%			0.2	-		
Gattex/Revestive		17.7	-	15.5	-			2.0	-	0.2	-		
Pentasa		7.2	-	7.2	-								
Lialda/Mezavan *1		6.0	-	2.8	-							3.2	-
Amitiza	9.6	7.0	-26.9%	6.9	-27.6%					0.1	-		
Resolor/Motegrity		2.0	-	1.2	-			0.8	-	0.0	-		
Other	5.2	5.1	-1.9%	1.2	190.5%	0.2	-80.8%	1.3	-19.1%	2.4	4.1%		
<b>Rare Metabolic</b>		<b>40.2</b>	-	<b>9.2</b>	-	<b>0.9</b>	-	<b>10.4</b>	-	<b>6.6</b>	-	<b>13.1</b>	-
Elaprase		16.8	-	5.1	-	0.5	-	6.2	-	5.0	-		
Replagal *1		13.1	-									13.1	-
Vpriv		9.7	-	4.2	-	0.4	-	3.5	-	1.6	-		
Natpara		0.6	-	-0.1	-			0.7	-	0.0	-		
<b>Rare Hematology</b>		<b>84.5</b>	-	<b>35.7</b>	-	<b>6.8</b>	-	<b>21.3</b>	-	<b>20.6</b>	-		
Advate		39.9	-	18.2	-	1.8	-	10.0	-	10.0	-		
Adynovate		15.1	-	7.2	-	3.9	-	3.0	-	1.0	-		
FEIBA *2		11.7	-	2.9	-	0.4	-	3.6	-	4.8	-		
Hemofil/Immunate/ Immunine *2		5.8	-	0.9	-			1.4	-	3.5	-		
Other PDT Products *2		1.8	-	0.0	-			1.6	-	0.2	-		
Other		10.2	-	6.5	-	0.8	-	1.7	-	1.2	-		
<b>Hereditary Angioedema</b>		<b>33.7</b>	-	<b>27.1</b>	-	<b>0.3</b>	-	<b>5.3</b>	-	<b>1.0</b>	-		
Firazyr		7.5	-	3.9	-	0.3	-	2.3	-	0.9	-		
Takhyzo		18.2	-	16.9	-			1.3	-	0.0	-		
Kalbitor		1.1	-	1.1	-								
Cinryze *2		6.9	-	5.2	-			1.6	-	0.1	-		

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\*2 PDT products

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Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

■ Q3 (Bn JPY)	Reported												
	FY18Q3	FY19Q3	YOY	US	YOY	Japan	YOY	EUCAN	YOY	GEM*3	YOY	Ex-US	YOY
<b>PDT Immunology</b>	<b>4.5</b>	<b>104.9</b>	-	<b>69.7</b>	-							<b>35.2</b>	-
Immunoglobulin *2	3.2	78.9	-	59.9	-							19.0	-
Albumin *2	0.5	15.7	-	3.0	-							12.7	-
Other *2	0.8	10.3	-	6.8	-							3.5	-
<b>Oncology</b>	<b>108.2</b>	<b>103.1</b>	<b>-4.7%</b>	<b>49.5</b>	<b>-10.4%</b>	<b>20.6</b>	<b>3.8%</b>	<b>17.2</b>	<b>1.6%</b>	<b>13.0</b>	<b>52.5%</b>	<b>2.8</b>	<b>-63.0%</b>
Velcade *1	35.4	27.2	-23.3%	25.3	-12.0%							1.9	-71.4%
Leuprorelin	29.5	26.0	-11.8%	2.8	-52.0%	11.3	-1.8%	7.1	-16.8%	4.8	32.0%		
Ninlaro	17.1	19.8	15.9%	12.9	1.0%	1.3	11.3%	3.2	26.4%	2.4	-		
Adcetris	10.9	13.7	25.2%			2.0	31.7%	6.2	13.4%	5.5	39.1%		
Iclusig *1	7.4	8.2	9.6%	7.3	11.0%							0.9	-0.4%
Alunbrig	1.5	1.8	18.4%	1.3	-9.3%			0.3	-	0.1	-		
Vectibix	5.7	6.0	6.2%			6.0	6.2%						
Other	0.6	0.4	-26.4%	0.0	-85.8%			0.3	-0.5%	0.1	-55.7%		
<b>Neuroscience</b>	<b>27.3</b>	<b>116.7</b>	-	<b>91.7</b>	-	<b>10.5</b>	<b>36.5%</b>	<b>12.6</b>	-	<b>1.9</b>	-		
Vyvanse		75.3	-	65.2	-			8.3	-	1.8	-		
Trintellix	17.5	19.7	12.4%	19.5	11.2%	0.2	-						
Adderall XR		4.4	-	4.0	-			0.4	-				
Rozerem	4.8	3.1	-36.2%	0.1	-93.2%	2.9	7.3%			0.0	-22.5%		
Reminyl	4.6	4.9	6.2%			4.8	5.9%	0.0	-				
Intuniv		2.9	-	-0.1	-	0.9	-	2.0	-	0.0	-		
Other	0.4	6.5	-	3.0	-	1.6	-	1.9	-	0.0	-		
<b>Other</b>	<b>218.7</b>	<b>184.7</b>	<b>-15.5%</b>										
Azilva	20.5	20.4	-0.5%			20.4	-0.5%						
Nesina	15.6	15.5	-1.0%	2.2	18.8%	7.5	-4.9%	2.7	-11.1%	3.0	7.7%		
Uloric	14.0	1.4	-90.1%	1.2	-91.2%			0.1	-64.5%	0.1	73.3%		
Colcrys	7.3	6.6	-9.5%	6.6	-9.5%								
Enbrel	9.8	8.1	-17.7%			8.1	-17.7%						
Lotriga	9.0	8.8	-2.6%			8.8	-2.6%						

\*1 License-out product : Regional breakdown is not available due to contract.

\*2 PDT products

\*3 GEM: Growth and Emerging Markets, which include Russia/CIS, Latin America, Asia, Middle East, Oceania and Africa

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenktsu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro

### 3. Product Sales Analysis (vs FY2018 Pro-forma)

(Bn JPY)	FY18 Reported Pro-forma*2				FY19 Reported & Underlying Growth														
	Q1	Q2	Q3	Q4	YOY			YOY				YOY				YOY			
					Q1	Reported	Underlying	Q2	Reported	Underlying	YTD Underlying	Q3	Reported	Underlying	YTD Underlying	Q4	Reported	Underlying	YTD Underlying
<b>GI</b>	<b>159.4</b>	<b>160.4</b>	<b>177.1</b>	<b>146.5</b>	<b>171.6</b>	<b>7.7%</b>	<b>7.9%</b>	<b>169.9</b>	<b>5.9%</b>	<b>9.9%</b>	<b>8.9%</b>	<b>191.6</b>	<b>8.2%</b>	<b>13.4%</b>	<b>10.5%</b>				
Entyvio	61.3	67.1	72.6	68.2	83.9	36.9%	36.8%	84.5	26.0%	31.3%	33.9%	95.1	31.0%	38.0%	35.4%				
Dexilant	17.4	17.5	20.0	14.3	15.8	-9.0%	-9.4%	15.3	-12.8%	-9.3%	-9.4%	16.9	-15.2%	-10.8%	-9.9%				
Pantoprazole	16.2	14.5	16.2	14.7	11.6	-28.5%	-25.0%	12.8	-11.3%	-6.0%	-16.0%	13.9	-14.2%	-8.1%	-13.3%				
Takecab-F	14.3	13.0	17.1	13.9	18.3	28.1%	28.1%	16.7	28.6%	28.6%	28.3%	20.7	20.8%	20.8%	25.4%				
Gattex/Revestive	14.5	10.8	13.9	12.8	15.1	4.5%	3.3%	14.1	31.2%	35.9%	17.0%	17.7	26.9%	33.0%	22.6%				
Pentasa	8.4	7.3	9.4	4.7	6.5	-22.4%	-23.7%	6.5	-11.1%	-8.4%	-16.7%	7.2	-23.6%	-20.2%	-18.0%				
Lialda/Mezavant	11.7	13.6	11.2	3.3	5.6	-52.5%	-51.7%	6.7	-50.9%	-48.5%	-50.0%	6.0	-46.8%	-43.7%	-48.1%				
Amitiza	7.9	8.4	9.6	7.1	7.8	-0.7%	-3.0%	7.3	-13.2%	-10.5%	-6.8%	7.0	-26.9%	-23.6%	-12.9%				
Resolor/Motegrity	0.7	0.7	1.8	0.7	1.4	85.1%	103.8%	1.3	94.4%	91.9%	97.7%	2.0	13.3%	19.5%	54.4%				
Other	7.0	7.6	5.2	6.8	5.6	-19.4%	-18.4%	4.7	-38.2%	-35.7%	-27.4%	5.1	-1.9%	2.5%	-19.6%				
<b>Rare Metabolic</b>	<b>49.4</b>	<b>47.9</b>	<b>51.0</b>	<b>42.3</b>	<b>48.9</b>	<b>-1.2%</b>	<b>3.9%</b>	<b>43.2</b>	<b>-9.8%</b>	<b>-2.1%</b>	<b>1.0%</b>	<b>40.2</b>	<b>-21.2%</b>	<b>-12.4%</b>	<b>-3.6%</b>				
Elaprase	19.1	18.9	19.1	15.1	18.8	-1.4%	3.6%	16.7	-11.7%	-4.8%	-0.6%	16.8	-11.8%	-4.2%	-1.8%				
Replagal	13.6	13.6	13.4	11.4	12.9	-5.3%	3.5%	12.6	-7.8%	2.7%	3.1%	13.1	-2.1%	11.5%	5.9%				
Vpriv	9.7	9.7	10.7	8.7	9.3	-4.6%	0.6%	9.4	-3.0%	5.7%	3.1%	9.7	-9.6%	-0.5%	1.8%				
Natpara	7.0	5.7	7.9	7.1	7.9	11.8%	10.2%	4.5	-20.1%	-17.9%	-2.2%	0.6	-92.1%	-91.2%	-35.5%				
<b>Rare Hematology</b>	<b>105.2</b>	<b>102.1</b>	<b>107.6</b>	<b>66.7</b>	<b>89.9</b>	<b>-14.5%</b>	<b>-12.6%</b>	<b>84.8</b>	<b>-17.0%</b>	<b>-12.7%</b>	<b>-12.7%</b>	<b>84.5</b>	<b>-21.4%</b>	<b>-16.7%</b>	<b>-14.0%</b>				
Advate	53.2	49.5	53.8	32.1	42.7	-19.7%	-18.1%	40.5	-18.1%	-13.5%	-15.9%	39.9	-25.9%	-21.0%	-17.4%				
Adynovate	13.2	15.4	15.4	10.7	16.7	26.4%	25.9%	13.1	-15.4%	-12.3%	5.4%	15.1	-1.9%	2.4%	4.4%				
FEIBA *1	21.0	17.2	16.3	9.6	13.1	-37.7%	-36.8%	14.8	-13.9%	-9.2%	-24.4%	11.7	-27.8%	-23.6%	-23.5%				
Hemofil/Immunate/ Immunine *1	5.5	5.7	7.2	5.5	6.6	20.0%	23.0%	5.6	-2.5%	3.4%	13.0%	5.8	-19.4%	-12.5%	3.4%				
Other PDT Products *1	1.0	0.6	0.8	0.5	0.6	-34.6%	-32.3%	0.5	-18.5%	-15.0%	-25.4%	1.8	134.9%	154.1%	31.3%				
Other	11.4	13.7	14.1	8.2	10.3	-9.5%	-1.1%	10.3	-24.5%	-21.6%	-12.7%	10.2	-27.5%	-24.1%	-18.9%				
<b>Hereditary Angioedema</b>	<b>39.7</b>	<b>36.5</b>	<b>32.8</b>	<b>20.4</b>	<b>31.9</b>	<b>-19.8%</b>	<b>-19.9%</b>	<b>28.5</b>	<b>-22.0%</b>	<b>-18.4%</b>	<b>-19.2%</b>	<b>33.7</b>	<b>2.6%</b>	<b>8.3%</b>	<b>-11.0%</b>				
Firazyr	23.0	15.6	24.4	6.4	9.0	-61.0%	-60.4%	6.3	-59.6%	-56.5%	-58.8%	7.5	-69.4%	-66.5%	-61.8%				
Takhyro		5.7	1.2	9.7	14.5	-	-	16.2	184.5%	194.4%	-	18.2	-	-	-				
Kalbitor	1.9	2.3	2.1	1.2	1.1	-41.5%	-42.7%	1.3	-43.6%	-41.8%	-42.2%	1.1	-45.3%	-42.9%	-42.4%				
Cinryze *1	14.8	13.0	5.1	3.1	7.3	-50.7%	-50.8%	4.7	-63.8%	-62.0%	-56.0%	6.9	34.3%	41.5%	-41.1%				

\*1 PDT products

\*2 FY2018 revenue is a pro-forma which adds Legacy Shire's 9 month (April-December 2018) revenue previously reported under US GAAP and conformed to IFRS without material differences and converted to JPY using FY2018 actual rate for the period.

Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

(Bn JPY)	FY18 Reported Pro-forma*2				FY19 Reported & Underlying Growth													
	Q1	Q2	Q3	Q4	YOY			YOY			YTD Underlying	YOY			YTD Underlying	YOY		
					Q1	Reported	Underlying	Q2	Reported	Underlying		Q3	Reported	Underlying		Q4	Reported	Underlying
<b>PDT Immunology</b>	<b>89.1</b>	<b>100.0</b>	<b>101.9</b>	<b>81.0</b>	<b>90.2</b>	<b>1.2%</b>	<b>1.6%</b>	<b>101.5</b>	<b>1.5%</b>	<b>5.3%</b>	<b>3.6%</b>	<b>104.9</b>	<b>2.9%</b>	<b>8.1%</b>	<b>5.1%</b>			
Immunoglobulin *1	69.5	75.5	77.4	64.3	68.0	-2.2%	-1.9%	78.5	4.0%	7.6%	3.0%	78.9	1.9%	7.0%	4.4%			
Albumin *1	12.9	17.3	17.0	11.0	16.1	25.6%	27.5%	17.9	3.8%	9.0%	16.9%	15.7	-7.9%	-2.9%	9.8%			
Other *1	6.7	7.2	7.5	5.6	6.0	-10.1%	-11.3%	5.1	-29.3%	-27.3%	-19.6%	10.3	38.2%	44.9%	2.6%			
<b>Oncology</b>	<b>98.9</b>	<b>99.5</b>	<b>108.2</b>	<b>92.8</b>	<b>106.5</b>	<b>7.6%</b>	<b>8.1%</b>	<b>108.4</b>	<b>8.9%</b>	<b>12.9%</b>	<b>10.5%</b>	<b>103.1</b>	<b>-4.7%</b>	<b>-0.0%</b>	<b>6.8%</b>			
Velcade	31.4	33.5	35.4	27.5	31.7	1.0%	-1.3%	31.9	-4.7%	-1.7%	-1.5%	27.2	-23.3%	-20.0%	-7.9%			
Leuprorelin	28.6	26.5	29.5	25.4	28.4	-0.9%	0.6%	28.3	6.7%	9.4%	4.9%	26.0	-11.8%	-8.9%	0.0%			
Ninlaro	14.0	15.4	17.1	15.7	18.3	30.8%	29.8%	20.0	29.7%	35.4%	32.7%	19.8	15.9%	22.3%	28.9%			
Adcetris	11.0	10.1	10.9	10.9	12.7	16.4%	26.6%	13.0	28.3%	39.0%	32.7%	13.7	25.2%	37.9%	34.5%			
Iclusig	7.0	7.2	7.4	7.1	7.6	9.2%	6.7%	7.0	-1.7%	1.3%	4.0%	8.2	9.6%	14.5%	7.5%			
Alunbrig	1.1	1.2	1.5	1.4	1.7	52.8%	51.1%	1.7	44.2%	50.2%	50.7%	1.8	18.4%	25.0%	40.6%			
Vectibix	5.4	5.1	5.7	4.3	5.6	3.5%	3.5%	6.0	17.3%	17.3%	10.2%	6.0	6.2%	6.2%	8.8%			
Other	0.5	0.5	0.6	0.4	0.4	-9.6%	2.5%	0.5	-14.4%	-3.9%	-0.9%	0.4	-26.4%	-21.9%	-8.7%			
<b>Neuroscience</b>	<b>100.8</b>	<b>104.2</b>	<b>118.4</b>	<b>81.0</b>	<b>111.9</b>	<b>11.1%</b>	<b>10.1%</b>	<b>102.0</b>	<b>-2.2%</b>	<b>1.1%</b>	<b>5.6%</b>	<b>116.7</b>	<b>-1.5%</b>	<b>3.0%</b>	<b>4.6%</b>			
Vyvanse	60.4	66.0	71.0	49.4	68.8	13.8%	12.8%	62.7	-5.0%	-1.5%	5.4%	75.3	6.0%	11.2%	7.4%			
Trintellix	14.1	13.0	17.5	12.9	17.4	23.4%	20.7%	17.2	32.2%	36.2%	28.1%	19.7	12.4%	17.3%	23.9%			
Adderall XR	8.8	8.6	11.3	5.4	5.7	-35.6%	-36.6%	4.9	-42.5%	-40.9%	-38.7%	4.4	-61.4%	-59.8%	-46.9%			
Rozerem	5.2	4.9	4.8	4.2	5.1	-1.6%	-2.8%	3.6	-27.4%	-26.9%	-14.5%	3.1	-36.2%	-35.5%	-21.1%			
Reminyl	5.0	4.3	5.3	3.7	4.8	-4.4%	-4.7%	4.2	-0.5%	-0.1%	-2.6%	4.9	-9.1%	-8.6%	-4.8%			
Intuniv	2.7	2.9	2.9	1.3	4.1	53.3%	60.2%	4.0	34.2%	41.9%	50.5%	2.9	2.3%	10.9%	37.2%			
Other	4.5	4.5	5.6	4.0	6.0	33.5%	34.6%	5.3	18.3%	22.8%	28.7%	6.5	16.2%	21.7%	26.1%			
<b>Other</b>																		
Azilva	19.4	15.8	20.5	15.0	20.5	5.4%	5.4%	18.2	15.5%	15.5%	9.9%	20.4	-0.5%	-0.5%	6.1%			
Nesina	14.1	12.7	15.6	12.3	14.6	3.3%	5.0%	14.0	10.3%	13.6%	9.1%	15.5	-1.0%	2.2%	6.6%			
Uloric	14.1	12.4	14.0	10.6	12.2	-13.1%	-15.0%	1.8	-85.3%	-84.8%	-47.2%	1.4	-90.1%	-89.7%	-61.6%			
Colcrys	9.2	7.1	7.3	6.4	7.2	-22.4%	-24.1%	6.0	-15.8%	-13.3%	-19.5%	6.6	-9.5%	-5.5%	-15.2%			
Enbrel	9.9	8.2	9.8	7.3	8.7	-12.1%	-12.1%	7.2	-11.6%	-11.6%	-11.9%	8.1	-17.7%	-17.7%	-13.9%			
Lotriga	8.1	7.1	9.0	6.6	8.8	8.1%	8.1%	7.2	1.2%	1.2%	4.9%	8.8	-2.6%	-2.6%	2.1%			

\*1 PDT products

\*2 FY2018 revenue is a pro-forma which adds Legacy Shire's 9 month (April-December 2018) revenue previously reported under US GAAP and conformed to IFRS without material differences and converted to JPY using FY2018 actual rate for the period.

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenktsu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro



#### 4. FY2018 Pro-forma and Product Forecasts

(Bn JPY)	FY18 Reported Pro-forma *2					FY19 Forecasts*3
	Q1	Q2	Q3	Q4	Annual	Annual
<b>GI</b>	<b>159.4</b>	<b>160.4</b>	<b>177.1</b>	<b>146.5</b>	<b>643.3</b>	
Entyvio	61.3	67.1	72.6	68.2	269.2	↗↗
Dexilant	17.4	17.5	20.0	14.3	69.2	↘
Pantoprazole	16.2	14.5	16.2	14.7	61.6	↘
Takecab-F	14.3	13.0	17.1	13.9	58.2	↗↗
Gattex/Revestive	14.5	10.8	13.9	12.8	51.9	↗
Pentasa	8.4	7.3	9.4	4.7	29.8	↘
Lialda/Mezavant	11.7	13.6	11.2	3.3	39.9	↘↘↘
Amitiza	7.9	8.4	9.6	7.1	33.0	↘
Resolor/Motegrity	0.7	0.7	1.8	0.7	3.9	→
Other	7.0	7.6	5.2	6.8	26.6	↘↘
<b>Rare Metabolic</b>	<b>49.4</b>	<b>47.9</b>	<b>51.0</b>	<b>42.3</b>	<b>190.7</b>	
Elaprase	19.1	18.9	19.1	15.1	72.2	→
Replagal	13.6	13.6	13.4	11.4	52.0	→
Vpriv	9.7	9.7	10.7	8.7	38.8	→
Natpara	7.0	5.7	7.9	7.1	27.6	↘↘↘
<b>Rare Hematology</b>	<b>105.2</b>	<b>102.1</b>	<b>107.6</b>	<b>66.7</b>	<b>381.5</b>	
Advate	53.2	49.5	53.8	32.1	188.6	↘
Adynovate	13.2	15.4	15.4	10.7	54.7	→
FEIBA *1	21.0	17.2	16.3	9.6	64.0	↘↘
Hemofil/Immunate/Immune *1	5.5	5.7	7.2	5.5	23.9	→
Other PDT Products *1	1.0	0.6	0.8	0.5	2.8	↘
Other	11.4	13.7	14.1	8.2	47.4	↘↘
<b>Hereditary Angioedema</b>	<b>39.7</b>	<b>36.5</b>	<b>32.8</b>	<b>20.4</b>	<b>129.5</b>	
Firazyr	23.0	15.6	24.4	6.4	69.3	↘↘↘
Takhyro		5.7	1.2	9.7	16.7	↘↘↘
Kalbitor	1.9	2.3	2.1	1.2	7.4	↘↘↘
Cinryze *1	14.8	13.0	5.1	3.1	36.0	↘↘↘

\*1 PDT products

\*2 FY2018 revenue is a pro-forma which adds Legacy Shire's 9 month (April-December 2018) revenue previously reported under US GAAP and conformed to IFRS without material differences and converted to JPY using FY2018 actual rate for the period.

\*3 The respective arrow symbols indicate management's growth rate forecasts as denoted below as compared to FY18 revenue on a pro-forma basis

→ ± <10% ↗ +10%~20% ↘ +20%~30% ↙ +>30% ↘ -10%~20% ↙ -20%~30% ↘ ↘ ↘ - >30%

Other PDT products in Rare Hematology include Bebulin, Prothromplex and Factor VII.

Other in Rare Hematology include Vonvendi, Obizur, Rixubis, Agrylin/Xagrid, Recombinate, Other Hemophilia.

(Bn JPY)	FY18 Reported Pro-forma *2					FY19 Forecasts*3
	Q1	Q2	Q3	Q4	Annual	Annual
<b>PDT Immunology</b>	<b>89.1</b>	<b>100.0</b>	<b>101.9</b>	<b>81.0</b>	<b>371.9</b>	
Immunoglobulin *1	69.5	75.5	77.4	64.3	286.7	➔
Albumin *1	12.9	17.3	17.0	11.0	58.2	➔
Other *1	6.7	7.2	7.5	5.6	27.1	➔
<b>Oncology</b>	<b>98.9</b>	<b>99.5</b>	<b>108.2</b>	<b>92.8</b>	<b>399.4</b>	
Velcade	31.4	33.5	35.4	27.5	127.9	➔
Leuprorelin	28.6	26.5	29.5	25.4	110.1	➔
Ninlaro	14.0	15.4	17.1	15.7	62.2	➔
Adcetris	11.0	10.1	10.9	10.9	42.9	➔
Iclusig	7.0	7.2	7.4	7.1	28.7	➔
Alunbrig	1.1	1.2	1.5	1.4	5.2	➔
Vectibix	5.4	5.1	5.7	4.3	20.5	➔
Other	0.5	0.5	0.6	0.4	2.0	➔
<b>Neuroscience</b>	<b>100.8</b>	<b>104.2</b>	<b>118.4</b>	<b>81.0</b>	<b>404.4</b>	
Vyvanse	60.4	66.0	71.0	49.4	246.8	➔
Trintellix	14.1	13.0	17.5	12.9	57.6	➔
Adderall XR	8.8	8.6	11.3	5.4	34.1	➔
Rozerem	5.2	4.9	4.8	4.2	19.1	➔
Reminyl	5.0	4.3	5.3	3.7	18.3	➔
Intuniv	2.7	2.9	2.9	1.3	9.8	➔
Other	4.5	4.5	5.6	4.0	18.7	➔
<b>Other</b>						
Azilva	19.4	15.8	20.5	15.0	70.8	➔
Nesina	14.1	12.7	15.6	12.3	54.8	➔
Uloric	14.1	12.4	14.0	10.6	51.1	➔
Colcrys	9.2	7.1	7.3	6.4	30.0	➔
Enbrel	9.9	8.2	9.8	7.3	35.2	➔
Lotriga	8.1	7.1	9.0	6.6	30.9	➔

\*1 PDT products

\*2 FY2018 revenue is a pro-forma which adds Legacy Shire's 9 month (April-December 2018) revenue previously reported under US GAAP and conformed to IFRS without material differences and converted to JPY using FY2018 actual rate for the period.

\*3 The respective arrow symbols indicate management's growth rate forecasts as denoted below as compared to FY18 revenue on a pro-forma basis

➔ ± <10% ➔ +10%~20% ➔ +20%~30% ➔ +>30% ➔ -10%~20% ➔ -20%~30% ➔ - >30%

Other in PDT Immunology include Aralast, Glassia, Ceprotin, Antithrombin III, Kenktsu-Nonthron and others

Other in Neuroscience include Copaxone, Rasagiline, Mydayis, Buccolam, Daytrana/Equasym and Carbatrol/Equetro

## 5. Exchange Rate

(yen)

(100 million yen)

Average Exchange Rates vs. JPY			
CURRENCY	FY18 Q3 (Apr-Dec)	FY19 Q3 (Apr-Dec)	FY19 Assumption
USD	111	109	109
EUR	130	121	122
RUB	1.7	1.7	1.7
CNY	16.6	15.7	15.6
BRL	29.6	27.3	27.0

Impact of 1% depreciation of yen from January 2020 to March 2020			
REVENUE	CORE OPERATING PROFIT	OPERATING PROFIT	NET PROFIT
+40.1	+13.5	-2.2	-4.0
+10.8	+2.4	-0.1	-0.4
+1.4	+0.7	+0.5	+0.4
+1.9	+0.4	+0.4	+0.3
+1.2	+0.3	+0.2	+0.1

## 6. CAPEX, depreciation and amortization and impairment losses

	FY18	FY18Q3 YTD	FY19Q3 YTD	YOY		(Bn JPY) FY19 Forecasts
Capital expenditures	244.6					180.0~ 230.0
Tangible assets*	188.4					
Intangible assets*	56.2					
* Excluding increase due to acquisition.						
Depreciation and amortization	271.9	116.0	437.9	321.9	-	
Depreciation of tangible assets* (A)	63.3	37.6	118.0	80.5	-	
Amortization of intangible assets (B)	208.6	78.4	319.9	241.4	-	
Of which Amortization associated with products (C)	194.7	71.9	309.9	238.1	-	420.0
Of which Amortization excluding intangible assets associated with products (D)	13.8	6.6	9.9	3.3	50.8%	
* Excluding depreciation for investment assets.						
Depreciation and amortization (excluding intangible assets associated with products) (A)+(D)	77.2	44.2	128.0	83.8	189.8%	150.0
Impairment losses	10.1	8.0	35.0	27.0	-	
Impairment losses associated with products	8.6	7.5	19.2	11.7	155.1%	101.0
Amortization and impairment losses on intangible assets associated with products	203.4	79.4	329.1	249.8	-	521.0

## 7. Reconciliation from Reported Revenue to Underlying Revenue

(BN YEN)	FY2018 <sup>*1</sup> Q3 YTD	FY2019 Q3 YTD	vs. PY	
<b>Revenue</b>	<b>1,380.0</b>	<b>2,519.5</b>	<b>+1,139.5</b>	<b>+82.6%</b>
Shire Revenue	1,291.5	-		
<b>Pro-forma Revenue</b>	<b>2,671.5</b>	<b>2,519.5</b>	<b>-152.1</b>	<b>-5.7%</b>
FX effects <sup>*2</sup>				+3.3pp
Divestitures <sup>*3</sup>				+1.2pp
Techpool & Multilab				+0.3pp
XIIDRA & TACHOSIL				+1.0pp
Others				-0.1pp
<b>Underlying Revenue Growth</b>				<b>-1.2%</b>

\*1 FY2018 Q3 YTD revenue is a pro-forma which adds Legacy Shire's 9 month (April - December 2018) revenue previously reported under US GAAP and conformed to IFRS without material differences, excluding Legacy Shire's oncology business, which was sold in August 2018, and converted to JPY using FY2018 actual rate for the period.

\*2 FX adjustment applies constant FY2018 actual full year average rate to both years (1USD=111 yen, 1EUR=129 yen).

\*3 Major adjustments are the exclusion of FY2018 Q3 YTD revenue of former subsidiaries, Guangdong Techpool Bio-Pharma Co., Ltd., and Multilab Indústria e Comércio de Produtos Farmacêuticos Ltda., both divested in FY2018, and FY2018 Q3 YTD and FY2019 Q3 YTD revenue of XIIDRA which was divested in July 2019 and TACHOSIL as Takeda agreed in May 2019 to divest this product.

## 8. Reconciliation from Reported to Core/Underlying Core – FY2019 Q3 YTD

(BN YEN)	REPORTED	REPORTED TO CORE ADJUSTMENTS							CORE	CORE TO UNDERLYING CORE ADJ.		UNDERLYING CORE
		Amortization & impairment of intangible assets	Other operating income/expense	Shire acquisition related costs	Shire purchase accounting adjustments	Swiss Tax Reform	Teva JV purchase accounting adjustments	Others		FX	Divestitures	
Revenue	2,519.5								2,519.5	75.2	-26.2	
Cost of sales	-841.6				168.9				-672.7	-23.2	4.0	
Gross Profit	1,677.9				168.9				1,846.8	54.0	-22.2	
SG&A expenses	-711.7			1.6	3.3				-706.8	-21.4		
R&D expenses	-353.1			5.1	0.1				-347.9	-5.7		
Amortization of intangible assets	-309.9	66.1			243.9				-			
Impairment losses on intangible assets	-19.2	19.2							-			
Other operating income	29.8		-19.0					-10.8	-			
Other operating expenses	-151.3		62.9	88.3					-			
Operating profit Margin	162.5 6.5%	85.3	44.0	95.0	416.2			-10.8	792.2 31.4%	24.9	-22.2	<b>30.9%</b>
Financial income/expenses	-91.4			4.6	11.4				-99.7	9.1		
Equity income/loss	-15.1							21.8	6.7	-0.0		
Profit before tax	56.0	85.3	44.0	99.6	427.7			10.9	699.2	27.3	-22.2	
Tax expense	-13.3	-20.4	-2.6	-18.5	-66.2	-66.6	-3.3	52.2	-138.8	-11.7	5.1	
Non-controlling interests	-0.2								-0.2	-0.0		
Net profit	42.5	64.9	41.4	81.1	361.4	-66.6	7.6	27.9	560.2	15.6	-17.0	
EPS (yen)	27								360	11	-11	<b>359</b>
Number of shares (millions)	1,557								1,557			1,555

## 9. Reconciliation from Reported to Core – FY2018 Q3 YTD

(BN YEN)	REPORTED	REPORTED TO CORE ADJUSTMENTS					CORE
		Amortization & impairment of intangible assets	Other operating income/expense	Shire acquisition related costs	Teva JV purchase accounting adjustments	Others	
Revenue	1,380.0						1,380.0
Cost of sales	-369.9						-369.9
Gross Profit	1,010.2						1,010.2
SG&A expenses	-447.7			11.0			-436.7
R&D expenses	-228.9						-228.9
Amortization of intangible assets	-71.9	71.9					-
Impairment losses on intangible assets	-7.5	7.5					-
Other operating income	61.7		-32.0		-29.7		-
Other operating expenses	-31.4		17.3	14.1			-
Operating profit	284.4	79.4	-14.6	25.1	-29.7		344.6
Margin	20.6%						25.0%
Financial income/expenses	-32.1			18.1		1.7	-12.3
Equity income/loss	-44.0				52.1		8.1
Profit before tax	208.4	79.4	-14.6	43.2	22.4	1.7	340.4
Tax expense	-44.0	-18.8	0.8	-8.7	-6.9	-0.0	-77.6
Non-controlling interests	0.1						0.1
Net profit	164.4	60.6	-13.9	34.5	15.6	1.6	262.9
EPS (yen)	210						336
Number of shares (millions)	783						783

## 10. Reconciliation from Net Profit to EBITDA/Adjusted EBITDA

(BN JPY)	FY2019 Q3 YTD	FY2019 LTM <sup>*1</sup>
Net profit for the year	42.7	-12.6
Income tax expenses	13.3	-44.9
Depreciation and amortization	437.9	594.1
Interest expense, net	104.8	136.9
<b>EBITDA</b>	<b>598.7</b>	<b>673.5</b>
Impairment losses	35.0	37.1
Other operating expense (income), net, excluding depreciation and amortization	103.6	76.6
Finance expense (income), net, excluding interest income and expense, net	-13.3	-11.1
Share of loss on investments accounted for under the equity method	15.1	14.8
Other adjustments:		
Impact on profit related to fair value step up of inventory in Shire acquisition	161.8	243.9
Acquisition costs related to Shire	1.4	14.2
Other costs <sup>*2</sup>	25.4	31.9
<b>Adjusted EBITDA</b>	<b>927.6</b>	<b>1,080.9</b>

<sup>\*1</sup> LTM represents Last Twelve Months (January 2019 – December 2019).

<sup>\*2</sup> Includes adjustment for non-cash equity based compensation expense starting from FY2019 Q1.



## II. Pipeline

### 1. Clinical Development Activities

- The following table lists the pipeline assets that we are developing as of February 4, 2020. The assets in our pipeline are in various stages of development, and the contents of the pipeline may change as compounds currently under development drop out and new compounds are introduced. Whether the compounds listed below are ever successfully released as products depends on various factors, including the results of pre-clinical and clinical trials, market conditions for various drugs and regulatory approvals.
- This table primarily shows the indications for which we will actively pursue approval. We are also conducting additional studies of certain assets to examine their potential for use in further indications and in additional formulations.
- The listings in this table are limited to the U.S., EU and Japan and China, but we are also actively conducting development activities in other regions, including in Emerging Markets. Country/region in the "Stage" column denote where a clinical study is ongoing or a filing has been made with our specific intention to pursue approval in any of the U.S., EU, Japan or China. 'Global' refers to U.S., EU, Japan and China.
- Brand name and country/region indicate the brand name and country in which the specific asset has already been approved for any indication in any of the U.S., EU, Japan or China and Takeda has commercialization rights for such asset.
- Stage-ups are recognized in the table upon achievement of First Subject In.

### ■ Oncology Pipeline

Development code				
<generic name> Brand name (country/region)	Drug Class (administration route)	Indications / additional formulations	Stage	
SGN-35*1 <brentuximab vedotin> ADCETRIS (EU, Japan)	CD30 monoclonal antibody- drug conjugate (injection)	Front line Peripheral T-cell Lymphoma	EU	Filed (June 2019)
		Relapsed/refractory Hodgkin Lymphoma	China	Filed (March 2019)
		Relapsed/refractory systemic Anaplastic Large-cell Lymphoma	China	Filed (March 2019)
<brigatinib> ALUNBRIG (U.S., EU)	ALK inhibitor (oral)	1L ALK-positive Non-Small Cell Lung Cancer	EU U.S. Japan China	Filed (June 2019) P-III P-III P-III
		2L ALK-positive Non-Small Cell Lung Cancer (head-to-head with alectinib)	Global	P-III
		2L ALK-positive Non-Small Cell Lung Cancer in patients previously treated with ALK inhibitors	Japan China	P-II(a) P-II(a)
		2L ALK-positive Non-Small Cell Lung Cancer in patients progressed on 2nd generation Tyrosine Kinase Inhibitors	Global	P-II
MLN9708 <ixazomib> NINLARO (Global)	Proteasome inhibitor (oral)	Maintenance therapy in patients with newly diagnosed Multiple Myeloma following autologous stem cell transplant	Japan U.S. EU China	Filed (April 2019) P-III P-III P-III
		Newly diagnosed Multiple Myeloma	Global	P-III
		Maintenance therapy in patients with newly diagnosed Multiple Myeloma not treated with stem cell transplant	Global	P-III
		Relapsed/refractory Multiple Myeloma (doublet regimen with dexamethasone)	U.S. EU Japan	P-III P-III P-III
		Relapsed/refractory Multiple Myeloma (triplet regimen with daratumumab and dexamethasone)	Global	P-II
<cabozantinib>*2	Multi-targeted kinase inhibitor (oral)	2L Renal cell carcinoma	Japan	Filed (April 2019)
		2L Hepatocellular carcinoma	Japan	Filed (January 2020)
		1L Renal cell carcinoma in combination with nivolumab	Japan	P-III
<niraparib>*3	PARP1/2 inhibitor (oral)	Ovarian cancer – maintenance	Japan	Filed (November 2019)
		Ovarian cancer – salvage	Japan	Filed (November 2019)
<ponatinib> ICLUSIG (U.S.)	BCR-ABL inhibitor (oral)	Front line Philadelphia chromosome-positive Acute Lymphoblastic Leukemia	U.S.	P-III
		Dose ranging study for Tyrosine Kinase Inhibitor-resistant patients with chronic-phase Chronic Myeloid Leukemia	U.S.	P-II(b)
TAK-924 <pevonedistat>	NEDD 8 activating enzyme inhibitor (injection)	High-risk Myelodysplastic Syndromes, Chronic Myelomonocytic Leukemia, Low-blast Acute Myelogenous Leukemia	U.S. EU Japan	P-III P-III P-III
		Unfit Acute Myelogenous Leukemia	Global	P-III

<b>TAK-788</b>	EGFR/HER2 exon 20 inhibitor (oral)	Treatment Naïve Non-Small Cell Lung Cancer with Exon-20 insertion	Global	P-III
		Previously treated Non-Small Cell Lung Cancer with Exon-20 insertion	Global	P-II
<b>TAK-385</b> <relugolix>	LH-RH antagonist (oral)	Prostate cancer	Japan China	P-III P-I
<b>TAK-007</b> *4	CD19 CAR-NK (injection)	Relapsed/refractory B-cell malignancies	-	P-I/II
<b>TAK-164</b>	Anti-guanylyl cyclase C antibody drug conjugate (injection)	GI malignancies	-	P-I
<b>TAK-573</b> *5	CD38-targeted IgG4 genetically fused with an attenuated IFN $\alpha$ (injection)	Relapsed/refractory Multiple Myeloma	-	P-I
<b>TAK-981</b>	SUMO inhibitor (injection)	Multiple cancers	-	P-I
<b>TAK-252 / SL-279252</b> *6	PD-1-Fc-OX40L (injection)	Solid tumors		P-I

\*1 Partnership with Seattle Genetics, Inc.

\*2 Partnership with Exelixis, Inc.

\*3 Partnership with GlaxoSmithKline

\*4 Partnership with The University of Texas MD Anderson Cancer Center

\*5 Partnership with Teva Pharmaceutical Industries Ltd.

\*6 Partnership with Shattuck Labs, Inc.

Additions since FY2019 Q2: TAK-007 for Relapsed/refractory B-cell malignancies (P-I/II)

Removals since FY2019 Q2: SGN-35 for Peripheral T-cell Lymphoma (Japan, approved December 2019)

TAK-931 for squamous esophageal cancer and squamous non-small cell lung cancer (P-II(a), discontinued)

## ■ Rare Diseases Pipeline

Development code <generic name> Brand name (country/region)	Drug Class (administration route)	Indications / additional formulations	Stage	
<b>TAK-743/SHP643</b> <lanadelumab> TAKHZYRO (U.S., EU)	Plasma kallikrein inhibitor (injection)	Hereditary Angioedema	China Japan	Filed (December 2018) P-III
		Pediatric Hereditary Angioedema	Global	P-III
<b>TAK-577/SHP677</b> VONVENDI (U.S.), VEYVONDI (EU)	von Willebrand factor [recombinant] (injection)	von Willebrand disease	Japan	Filed (July 2019)
		Prophylactic treatment of von Willebrand disease	Global	P-III
		Pediatric on-demand treatment of von Willebrand disease	Global	P-III
<b>TAK-672/SHP672</b> *1 OBIZUR (U.S., EU)	Antihemophilic factor [recombinant], porcine sequence (injection)	Congenital hemophilia A with inhibitors	U.S. EU	P-III P-III
<b>TAK-660/SHP660</b> ADYNOVATE (U.S., Japan), ADYNOVI (EU)	Antihemophilic factor [recombinant], PEGylated (injection)	Pediatric Hemophilia A	EU	P-III
<b>TAK-755/SHP655</b> *2	Replacement of the deficient-ADAMTS13 enzyme (injection)	Congenital Thrombotic Thrombocytopenic Purpura	U.S. EU	P-III P-III
		Immune Thrombotic Thrombocytopenic Purpura	U.S. EU	P-II P-II
		Sickle cell disease	U.S.	P-I/II
<b>TAK-620/SHP620</b> *3 <maribavir>	Benzimidazole riboside inhibitor (oral)	Cytomegalovirus infection in transplant patients	U.S. EU	P-III P-III
<b>TAK-607/SHP607</b>	Insulin-like Growth Factor / IGF Binding Protein (injection)	Complications of prematurity	-	P-II
<b>TAK-609/SHP609</b>	Recombinant human iduronate-2-sulfatase for intrathecal administration (injection)	Hunter syndrome CNS	U.S. EU	P-II P-II
<b>TAK-611/SHP611</b>	Recombinant human arylsulfatase A for intrathecal administration (injection)	Metachromatic leukodystrophy	-	P-II

<b>TAK-754/SHP654</b> *4	Gene therapy to restore endogenous FVIII expression	Hemophilia A	-	P-I/II
<b>TAK-079</b> *5	Anti-CD38 monoclonal antibody (injection)	Myasthenia gravis	-	P-I/II
		Systemic lupus erythematosus	-	P-I/II
<b>TAK-834/SHP634</b> NATPARA (U.S.), NATPAR (EU)	Parathyroid hormone (injection)	Hypoparathyroidism	Japan	P-I**6

\*1 Partnership with Ipsen

\*2 Partnership with KM Biologics

\*3 Partnership with GlaxoSmithKline

\*4 Partnership with Asklepios Biopharmaceuticals

\*5 Relapsed/refractory Multiple Myeloma will continue until trial completion. TAK-079 to be developed in Rare Diseases indications myasthenia gravis (MG) and immune thrombocytopenic purpura (ITP); First Patient In expected Q4 FY19

\*6 NATPARA P-I study in Japan completed; P-III study start timing under review.

Removals since FY2019 Q2: TAK-531 for Hunter Syndrome CNS (P-I, discontinued)

## ■ Neuroscience Pipeline

Development code <generic name> Brand name (country/region)	Drug Class (administration route)	Indications / additional formulations		Stage
<b>TAK-815/SHP615</b> <midazolam> BUCCOLAM (EU)	GABA Allosteric Modulator (oral)	Status epilepticus (seizures)	Japan	P-III
<b>TAK-831</b>	D-amino acid oxidase (DAAO) inhibitor (oral)	Negative symptoms and/or cognitive impairment associated with schizophrenia	-	P-II(a)
<b>TAK-935</b> *1 <soticlestat>	CH24H inhibitor (oral)	Developmental and epileptic encephalopathies	-	P-II
		Complex Regional Pain Syndrome		P-II
<b>WVE-120101</b> *2	mHTT SNP1 antisense oligonucleotide (injection)	Huntington's disease	-	P-I/II
<b>WVE-120102</b> *2	mHTT SNP2 antisense oligonucleotide (injection)	Huntington's disease	-	P-I/II
<b>TAK-041</b>	GPR139 agonist (oral)	Negative symptoms and/or cognitive impairment associated with schizophrenia	-	P-I
<b>TAK-341/MEDI1341</b> *3	Alpha-synuclein antibody (injection)	Parkinson's disease	-	P-I
<b>TAK-418</b>	LSD1 inhibitor (oral)	Kabuki syndrome	-	P-I
<b>TAK-653</b>	AMPA receptor potentiator (oral)	Treatment resistant depression	-	P-I
<b>TAK-925</b>	Orexin 2R agonist (injection)	Narcolepsy	-	P-I
<b>TAK-994</b>	Orexin 2R agonist (oral)	Narcolepsy	-	P-I

\*1 Co-development with Ovid Therapeutics Inc.

\*2 50:50 co-development and co-commercialization option with Wave Life Sciences Ltd.

\*3 Partnership with AstraZeneca. AstraZeneca leads Phase 1 development

Additions since FY2019 Q2: TAK-935 for Complex Regional Pain Syndrome (P-II)

## ■ GI Pipeline

Development code				
<generic name> Brand name (country/region)	Drug Class (administration route)	Indications / additional formulations	Stage	
<b>MLN0002</b> <vedolizumab> <b>ENTYVIO</b> (U.S., EU, Japan)	Humanized monoclonal antibody against $\alpha 4\beta 7$ integrin (injection)	Crohn's disease	China	Filed (May 2019)
		Ulcerative colitis	China	Filed (May 2019)
		Subcutaneous formulation for ulcerative colitis	U.S.	CRL received (Dec 2019)* <sup>7</sup>
			EU	Filed (March 2019)
		Subcutaneous formulation for Crohn's disease	Japan	Filed (August 2019)
			EU	Filed (March 2019)
		Graft-versus-Host Disease prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplantation	U.S.	P-III
Japan	P-III			
Pediatrics Study (ulcerative colitis, Crohn's disease)	Global	P-II		
<b>TAK-438</b> <vonoprazan> <b>TAKECAB</b> (Japan)	Potassium-competitive acid blocker (oral)	Fixed-dose combination with low-dose aspirin	Japan	Filed (June 2019)
<b>TAK-633/SHP633</b> <teduglutide> <b>GATTEX</b> (U.S.) <b>REVESTIVE</b> (EU)	GLP-2 analogue (injection)	Short bowel syndrome (pediatric indication)	Japan	P-III
		Short bowel syndrome (in adults)	Japan	P-III
<b>Cx601</b> <darvadstrocel> <b>ALOFISEL</b> (EU)	A suspension of allogeneic expanded adipose-derived stem cells (injection)	Refractory complex perianal fistulas in patients with Crohn's disease	U.S. Japan	P-III P-III
<b>TAK-721/SHP621</b> * <sup>1</sup> <budesonide>	Glucocorticosteroid (oral)	Eosinophilic esophagitis	U.S.	P-III
<b>TAK-906</b>	Dopamine D2/D3 receptor antagonist (oral)	Gastroparesis	-	P-II(b)
<b>TAK-954</b> * <sup>2</sup>	5-HT <sub>4</sub> - hydroxytryptamine receptor agonist (injection)	Post-operative gastrointestinal dysfunction	-	P-II(b)
<b>TAK-101</b> * <sup>3</sup>	Tolerizing Immune Modifying nanoParticle (TIMP) (injection)	Celiac disease	-	P-II(a)
<b>TAK-951</b>	Peptide agonist (subcutaneous)	Nausea and vomiting	-	P-I
<b>TAK-671</b> * <sup>4</sup>	Protease inhibitor (injection)	Acute pancreatitis	-	P-I
<b>TAK-018/EB8018</b> * <sup>5</sup>	FimH antagonist (oral)	Crohn's disease (post-operative and ileitis)	-	P-I
<b>Kuma062</b> * <sup>6</sup>	Glutenase (oral)	Celiac disease	-	P-I

\*1 Partnership with UCSD and Fortis Advisors

\*2 Partnership with Theravance Biopharma, Inc.

\*3 Acquired license for TAK-101 from Cour Pharmaceutical Development Company. Previously known as TIMP-GLIA.

\*4 Partnership with Samsung Bioepis

\*5 Partnership with Enterome Bioscience SA

\*6 Partnership with PVP Biologics, Inc. PVP leads Phase 1 development.

\*7 Complete Response Letter (CRL) is unrelated to the clinical safety and efficacy data, and included queries related to the design and labelling of the SC product. Takeda is working to resolve CRL and expects an updated timeline within H1 CY2020.

Removals since FY2019 Q2: TAK-438 for acid-related diseases (China, approved December 2019)

TAK-681 for short bowel syndrome (P-I, discontinued)

## ■ Plasma-Derived Therapies Pipeline

Development code <generic name> Brand name (country/region)	Drug Class (administration route)	Indications / additional formulations	Stage
<b>TAK-616/SHP616</b> CINRYZE (U.S., EU)	C1 esterase inhibitor [human] (injection)	Hereditary angioedema	Japan P-III
<b>TAK-771/SHP671</b> <sup>*1</sup> <IG Infusion 10% (Human) w/ Recombinant Human Hyaluronidase> HYQVIA (U.S., EU)	Immunoglobulin (IgG) + recombinant hyaluronidase replacement therapy (injection)	Pediatric indication for primary immunodeficiency  Chronic inflammatory demyelinating polyradiculoneuropathy	U.S. P-III  U.S. P-III EU P-III

\*1 Partnership with Halozyme

## ■ Vaccines Pipeline

Development code Brand name (country/region)	Type of vaccine (administration route)	Indications / additional formulations	Stage
<b>TAK-003</b>	Tetravalent dengue vaccine (injection)	Prevention of dengue fever caused by dengue virus	- P-III
<b>TAK-214</b>	Norovirus vaccine (injection)	Prevention of acute gastroenteritis (AGE) caused by norovirus	- P-II(b)
<b>TAK-021</b>	EV71 vaccine (injection)	Prevention of hand, foot and mouth disease caused by enterovirus 71	- P-I
<b>TAK-426</b> <sup>*1</sup>	Zika vaccine (injection)	Prevention of zika virus infection	- P-I

\*1 Partnership with The Biomedical Advanced Research and Development Authority (BARDA) - U.S. Government

## 2. Recent Progress in stage [Progress in stage disclosed since release of FY2018 results (May 14th, 2019)]

Development code <generic name>	Indications / additional formulations	Country/Region	Progress in stage
<b>MLN0002</b> <vedolizumab>	Crohn's disease	Japan	Approved (May 2019)
<b>TAK-633/SHP633</b> <teduglutide>	Short bowel syndrome (pediatric indication)	U.S.	Approved (May 2019)
<b>Lu AA21004</b> <vortioxetine>	Depression and depressed state	Japan	Approved (Sept 2019)
<b>MLN0002</b> <vedolizumab>	Crohn's disease	China	Filed (May 2019)
<b>MLN0002</b> <vedolizumab>	Ulcerative colitis	China	Filed (May 2019)
<b>SGN-35</b> <brentuximab vedotin>	Front line Peripheral T-cell Lymphoma	EU	Filed (June 2019)
<brigatinib>	1L ALK-positive Non-Small Cell Lung Cancer	EU	Filed (June 2019)
<b>TAK-577 / SHP677</b>	von Willebrand disease	Japan	Filed (July 2019)
<b>MLN0002</b> <vedolizumab>	Subcutaneous formulation for ulcerative colitis	Japan	Filed (August 2019)
<b>MLN0002</b> <vedolizumab>	Graft-versus-Host Disease prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplantation	Japan	P-III
<brigatinib>	1L ALK-positive Non-Small Cell Lung Cancer	Japan, China	P-III
<b>MLN0002</b> <vedolizumab>	Pediatrics Study (ulcerative colitis, Crohn's disease)	Global	P-II
<b>TAK-755</b>	Immune Thrombotic Thrombocytopenic Purpura	U.S., EU	P-II
<b>TAK-755</b>	Sickle cell disease	U.S.	P-I/II
<b>TAK-994</b>	Narcolepsy	-	P-I
<b>SGN-35</b> <brentuximab vedotin>	Peripheral T-cell Lymphoma	Japan	Approved (Dec 2019)
<b>TAK-438</b> <vonoprazan>	Acid related diseases (reflux esophagitis)	China	Approved (Dec 2019)
<niraparib>	Ovarian cancer – maintenance; Ovarian cancer – salvage	Japan	Filed (November 2019)
<cabozantinib>	2L Hepatocellular carcinoma	Japan	Filed (January 2020)
<b>TAK-788</b>	Treatment Naïve Non-Small Cell Lung Cancer with Exon-20 insertion	Global	P-III
<b>TAK-924</b> <pevonedistat>	Unfit Acute Myelogenous Leukemia	Global	P-III
<b>TAK-743/SHP643</b> <lanadelumab>	Pediatric Hereditary Angioedema	Global	P-III
<b>TAK-743/SHP643</b> <lanadelumab>	Hereditary Angioedema	Japan	P-III
<b>TAK-935</b> <soficlistat>	Complex Regional Pain Syndrome	-	P-II
<b>TAK-007</b>	Relapsed/refractory B-cell malignancies	-	P-I/II

Progress in stage disclosed since the announcement of FY2019 Q2 results (October 31, 2019) are listed under the bold dividing line



**3. Discontinued projects [Update disclosed since release of FY2018 results (May 14th, 2019)]**

Development code <generic name>	Indications (Stage)	Reason
<b>MLN9708</b> <ixazomib>	Relapsed/refractory primary amyloidosis (Global P-III)	Failed primary endpoint; encouraging secondary endpoint data will be submitted for presentation at an upcoming scientific meeting
<b>TAK-659</b>	DLBCL, hematologic malignancies (P-II(a))	Despite promising data from current and completed studies, TAK-659 does not meet the high innovation bar we have established
<b>TAK-228</b> <sapanisertib>	Endometrial cancer (U.S., P-II(b))	Clinical results do not justify continued development
<b>TAK-931</b>	Squamous esophageal cancer; Squamous Non-Small Cell Lung Cancer (P-II(a))	Clinical results do not justify continued development in both indications
<b>TAK-681</b>	Short bowel syndrome (P-I)	Decision to discontinue development based on evolving competitive landscape and alignment with GI strategy
<b>TAK-531</b>	Hunter Syndrome CNS (P-I)	Decision to discontinue development based on additional nonclinical data

Updates disclosed since the announcement of FY2019 Q2 results (October 31, 2019) are listed under the bold dividing line

**4. Exploring Alternative Value Creation [Update disclosed since release of FY2018 results (May 14th, 2019)]**

Development code <generic name>	Indications (Stage)	Reason
<b>TAK-438</b> <vonoprazan>	Gastro esophageal reflux disease in patients who have a partial response following treatment with a proton pump inhibitor (EU, P-II(b))	Takeda has granted a license to Phathom Pharmaceuticals for the development and exclusive commercialization rights to vonoprazan in the U.S., Europe and Canada in exchange for upfront cash and equity, as well as future cash milestones and royalties on net sales.

## 5. Main Research & Development collaborations\*

### Oncology

Partner	Country	Subject
Adimab	U.S.	Agreement for the discovery, development and commercialization of three mAbs and three CD3 Bi-Specific antibodies for oncology indications.
Centre d'Immunologie de Marseille-Luminy	France	Collaboration agreement to bring together expertise and knowledge in innate biology with Takeda's BacTrap capabilities to identify novel targets and pathways in myeloid cells.
ASKA Pharmaceutical Co., Ltd	Japan	Takeda granted exclusive commercialization rights for uterine fibroids and exclusive development and commercialization rights for endometriosis for Japan to maximize the product value of relugolix (TAK-385).
Crescendo Biologics	U.K.	Collaboration and licensing agreement for the discovery, development and commercialization of Humabody <sup>®</sup> -based therapeutics for cancer indications.
CuraDev <sup>†</sup>	U.K.	Curadev has licensed its novel lead small molecule Stimulator of Interferon Genes (STING) agonist (referred to by Curadev as CRD5500) and associated patents to Takeda.
Exelixis, Inc.	U.S.	Exclusive licensing agreement to commercialize and develop novel cancer therapy cabozantinib and all potential future cabozantinib indications in Japan, including advanced renal cell carcinoma and hepatocellular carcinoma.
GammaDelta Therapeutics	U.K.	Collaboration agreement to discover and develop new immunotherapies in oncology using GammaDelta Therapeutics' novel T cell platform based on the unique properties of gamma delta T cells derived from human tissues.
Haemalogix	Australia	Research collaboration and licensing agreement for the development of new therapeutics to novel antigens in multiple myeloma.
Heidelberg Pharma	Germany	Antibody-Drug-Conjugate (ADC) research collaboration on 2 targets and licensing agreement ( $\alpha$ -amanitin payload and proprietary linker).
ImmunoGen, Inc.	U.S.	Licensing agreement for rights to use ImmunoGen's Inc. ADC technology to develop and commercialize targeted anticancer therapeutics (TAK-164).
Maverick Therapeutics	U.S.	Collaboration agreement for the development of Marveric Therapeutics' T-cell engagement platform created specifically to improve the utility of T-cell redirection therapy for the treatment of cancer. Under the agreement, Takeda have the exclusive option to acquire Marverick Therapeutics after 5 years.
MD Anderson Cancer Center, University of Texas <sup>‡</sup>	U.S.	Exclusive license agreement and research agreement to develop cord blood-derived chimeric antigen receptor-directed natural killer (CAR NK)-cell therapies, 'armored' with IL-15, for the treatment of B-cell malignancies and other cancers
Memorial Sloan Kettering Cancer Center	U.S.	Alliance to discover and develop novel Chimeric Antigen Receptor T (CAR-T) cell products for the potential treatment of hematological malignancies and solid tumors.
Molecular Templates	U.S.	Initial collaboration agreement applied Molecular Templates' engineered toxin bodies (ETBs) technology platform to potential therapeutic targets. The second collaboration agreement is for the joint development of CD38-targeted ETBs for the treatment of patients with diseases such as multiple myeloma. <sup>‡</sup>
Myovant Sciences	Switzerland	Takeda granted Myovant an exclusive, worldwide license (excluding Japan and certain other Asian countries) to relugolix (TAK-385) and an exclusive, worldwide license to MVT-602 (TAK-448).
National Cancer Center of Japan	Japan	Partnership agreement to develop basic research to clinical development by promoting exchanges among researchers, physicians, and others engaged in anti-cancer drug discovery and cancer biology research.
Nektar Therapeutics	U.S.	Research collaboration agreement to explore combination cancer therapy with five Takeda oncology compounds and Nektar's lead immuno-oncology candidate, the CD122-biased agonist NKTR-214.
Noile-Immune Biotech	Japan	Collaboration agreement for the development of next generation CAR-T cell therapy, developed by Professor Koji Tamada at Yamaguchi University. Takeda has exclusive options to obtain licensing rights for the development and commercialization of Noile-Immune Biotech's pipeline and products resulting from this partnership. Due to the success of the collaboration, Takeda licensed NIB-102 and NIB-103.
Seattle Genetics	U.S.	Agreement for the joint development of ADCETRIS, an ADC technology which targets CD30 for the treatment of HL. Approved in 67 countries with ongoing clinical trials for additional indications.
Shattuck Labs	U.S.	Collaboration agreement to explore and develop checkpoint fusion proteins utilizing Shattuck's unique Agonist Redirected Checkpoint (ARC) <sup>™</sup> platform which enables combination immunotherapy with a single product. Takeda will have the option to take an exclusive license to further develop and commercialize TAK-252/SL-279252
GlaxoSmithKline	U.K.	Exclusive licensing agreement to develop and commercialize novel cancer therapy niraparib for the treatment of all tumor types in Japan, and all tumor types excluding prostate cancer in South Korea, Taiwan, Russia and Australia.
Teva	Israel	Agreement for worldwide License to TEV-48573 (TAK-573) (CD38-Attenukine) and multi-target discovery collaboration accessing Teva's attenukine platform.
Turnstone Therapeutics <sup>‡</sup>	U.S.	Collaboration to co-develop RIVAL-01 (novel oncolytic virus expressing aCTLA4, IL12-mb, fIt3L) via a worldwide partnership and also conduct collaborative discovery efforts to identify additional novel product candidates based on a Turnstone's vaccinia virus platform.

<sup>‡</sup> Executed since April 1, 2019



## Rare Diseases

Partner	Country	Subject
AB Biosciences	U.S.	Research collaboration agreement to potentially develop assets for rare disease with pan-receptor interacting molecules targeted for specific immunological conditions with a focus on autoimmune modulated inflammatory diseases
Asklepios Biopharmaceuticals	U.S.	Agreement for multiple research and development collaborations using FVIII Gene Therapy for the treatment of Hemophilia A and B.
BioMarin	U.S.	Agreement for the in-license of enabling technology for the exogenous replacement of iduronate-2-sulfatase with Idursulfase-IT in patients via direct delivery to the CNS for the long-term treatment of Hunter Syndrome in patients with cognitive impairment in order to slow progression of cognitive impairment (TAK-609/SHP609).
GlaxoSmithKline	U.K.	In-license agreement between GSK and University of Michigan for TAK-620/SHP620 (marabivir) in the treatment of human cytomegalovirus.
Harrington Discovery Institute at University Hospitals in Cleveland, Ohio	U.S.	Collaboration agreement for the advancement of medicines for rare diseases.
IPSEN	France	Purchase agreement for the development of Obizur for the treatment of Acquired Hemophilia A including for patients with Congenital Hemophilia A with inhibitors indication in elective or emergency surgery.
KM Biologics	Japan	Agreement for the development collaboration of TAK-755/SHP655 to overcome the ADAMTS13 deficiency, induce clinical remission thus reducing cTTP related morbidity and mortality.
NanoMedSyn	France	Pre-clinical research collaboration agreement to evaluate a potential enzyme replacement therapy using NanoMedSyn's proprietary synthetic derivatives named AMFA
Novimmune	Switzerland	Agreement for the exclusive worldwide rights to develop and commercialize an innovative, bi-specific antibody in pre-clinical development for the treatment of hemophilia A
Rani Therapeutics	U.S.	Research collaboration agreement to evaluate a micro tablet pill technology for oral delivery of FVIII therapy in hemophilia
Ultragenyx	U.S.	Collaboration agreement to develop and commercialize therapies for rare genetic diseases.
Xenetic Biosciences	U.S.	Exclusive R & D license agreement for PolyXen delivery technology for hemophilia factors VII, VIII, IX, X.

## Neuroscience

Partner	Country	Subject
AstraZeneca	UK	Agreement for the joint development and commercialization of MEDI1341, an alpha-synuclein antibody currently in development as a potential treatment for Parkinson's disease.
Denali Therapeutics	U.S.	Strategic option and collaboration agreement to develop and commercialize up to three specified therapeutic product candidates for neurodegenerative diseases, incorporating Denali's ATV platform for increased exposure of biotherapeutic products in the brain.
Lundbeck	Denmark	Collaboration agreement to develop and commercialize vortioxetine.
Mindstrong Health	U.S.	Agreement to explore development of digital biomarkers for selected mental health conditions, in particular schizophrenia and treatment-resistant depression.
Ovid Therapeutics	U.S.	Agreement for the development of TAK-935, an oral CH24H inhibitor for rare pediatric epilepsies. Takeda and Ovid Therapeutics will share in the development and commercialization costs of TAK-935 on a 50/50 basis and, if successful, share in the profits on a 50/50 basis.
Skyhawk Therapeutics‡	U.S.	Collaboration and licensing agreement to develop and commercialize RNA modulation therapies targeting neurodegenerative diseases.
StrideBio	U.S.	Collaboration and license agreement to develop <i>in vivo</i> AAV based therapies for Friedreich's Ataxia (FA) and two additional undisclosed targets.
Wave Life Sciences	Singapore	Research, development and commercial collaboration and multi-program option agreement to develop antisense oligonucleotides for a range of neurological diseases.

‡ Executed since April 1, 2019

## Gastroenterology

Partner	Country	Subject
Ambys Medicines	U.S.	Collaboration agreement for the application of novel modalities, including cell and gene therapy and gain-of-function drug therapy, to meet the urgent need for treatments that restore liver function and prevent the progression to liver failure across multiple liver diseases. Under the terms of the agreement, Takeda has an option to ex-U.S. commercialization rights for the first 4 products that reach an investigational new drug application.
Arcturus	U.S.	Collaboration agreement to develop RNA-based therapeutics for the treatment of non-alcoholic steatohepatitis and other gastrointestinal related disorders using Arcturus' wholly-owned LUNAR™ lipid-mediated delivery systems and UNA Oligomer chemistry.
Beacon Discovery	U.S.	Collaboration agreement for the G-protein coupled receptor drug discovery and development program to identify drug candidates for a range of gastrointestinal disorders. The agreement grants Takeda worldwide rights to develop, manufacture and commercialize products resulting from the collaboration.
Cerevance <sup>‡</sup>	U.S.	Multi-year research alliance to identify novel target proteins expressed in the central nervous system and to develop new therapies against them for certain GI disorders. Goal of the collaboration is to select, confirm and validate targets from gene expression data sets generated by Cerevance's NETSseq technology.
Cour Pharmaceutical Development Company <sup>‡</sup>	U.S.	Takeda has acquired an exclusive global license to develop and commercialize the investigational medicine TIMP-GLIA (TAK-101), an immune modifying nanoparticle containing gliadin proteins.
Enterome	France	Collaboration agreement to research and develop microbiome targets thought to play crucial roles in gastrointestinal disorders, including inflammatory bowel diseases (e.g. ulcerative colitis). The agreement includes a global license and co-development of EB8018/TAK-018 in Crohn's disease.
Finch Therapeutics	U.S.	Global agreement to develop FIN-524, a live biotherapeutic product composed of cultured bacterial strains linked to favorable clinical outcomes in studies of microbiota transplantations in inflammatory bowel disease. Under the terms of the agreement, Takeda obtains the exclusive worldwide rights to develop and commercialize FIN-524 and rights to follow-on products in inflammatory bowel diseases.
Hemoshear Therapeutics	U.S.	Collaboration agreement for novel target and therapeutic development for liver diseases, including nonalcoholic steatohepatitis using Hemoshear's proprietary REVEAL-Tx drug discovery platform.
Janssen	Belgium	Exclusive license agreement to develop and market prucalopride as a treatment for chronic constipation in the U.S. Motegrity, approved in December 2018.
NuBiyota	Canada	Agreement for the development of Microbial Ecosystem Therapeutic products for gastroenterology indications.
PvP Biologics	U.S.	Global agreement to develop Kuma062, a novel enzyme designed to break down the immune-reactive parts of gluten in the stomach. Under the terms of the agreement, Takeda obtains an exclusive option to acquire PvP Biologics following receipt of a pre-defined data package.
Phathom Pharmaceuticals <sup>‡</sup>	U.S.	Takeda has granted a license to Phathom Pharmaceuticals for the development and exclusive commercialization rights to vonoprazan in the U.S., Europe and Canada in exchange for upfront cash and equity, as well as future cash milestones and royalties on net sales.
Samsung Bioepis	Korea	Strategic collaboration agreement to jointly fund and co-develop multiple novel biologic therapies in unmet disease areas. The program's first therapeutic candidate is TAK-671, which is intended to treat severe acute pancreatitis.
Silence Therapeutics <sup>‡</sup>	U.K.	Technology Evaluation Agreement with Silence Therapeutics to access their GalNAC-siRNA technology platform. The objective of the evaluation is to identify a GalNAC-conjugated siRNA that inhibits expression of a proprietary Takeda target.
Theravance Biopharma	U.S.	Global license, development and commercialization agreement for TAK-954, a selective 5-HT4 receptor agonist for motility disorders.
UCSD/Fortis Advisors	U.S.	Technology license for the development of oral budesonide formulation (TAK-721/SHP621) for treatment of eosinophilic esophagitis.

<sup>‡</sup> Executed since April 1, 2019

## Plasma Derived Therapies

Partner	Country	Subject
Halozyme	U.S.	Agreement for the in-license of Halozyme's proprietary ENHANZE™ platform technology to increase dispersion and absorption of HyQvia. Ongoing development work for a U.S. pediatric indication to treat primary immunodeficiencies and a Phase 3 indication in Chronic Inflammatory Demyelinating Polyradiculoneuropathy.
Kamada	Israel	In-license agreement to develop and commercialize Alpha-1 proteinase inhibitor (Glassia) ; Exclusive supply and distribution of Glassia in the U.S., Canada, Australia and New Zealand; Development of protocol for post market commitment trial ongoing.

## Vaccines

Partner	Country	Subject
Biological E. Limited	India	Takeda agreed to transfer existing measles and acellular pertussis vaccine bulk production technology to develop low-cost combination vaccines for India, China and low- and middle-income countries.
U.S. Government - The Biomedical Advanced Research and Development Authority (BARDA)	U.S.	Partnership to develop TAK-426, a Zika vaccine candidate, to support the Zika response in the U.S. and affected regions around the world.
Zydus Cadila	India	Partnership to develop TAK-507, a Chikungunya vaccine candidate, to tackle an emerging and neglected infectious disease in the world.

## Other / Multiple Therapeutic Area

Partner	Country	Subject
Bridge Medicines	U.S.	Partnership with Tri-Institutional Therapeutics Discovery Institute, Bay City Capital and Deerfield Management in the establishment of Bridge Medicines. Bridge Medicines will give financial, operational and managerial support to move projects seamlessly from a validating, proof-of-concept study to an in-human clinical trial.
Center for iPS Cell Research Application, Kyoto University	Japan	Collaboration agreement for clinical applications of iPS cells in Takeda strategic areas including applications in neurosciences, oncology and GI as well as discovery efforts in additional areas of compelling iPSC translational science.
Charles River Laboratories <sup>‡</sup>	U.S.	Collaboration on multiple integrated programs across Takeda's core therapeutic areas using Charles River Laboratories' end-to-end drug discovery and safety assessment platform to progress these programs towards candidate status.
HiFiBio	U.S.	Collaboration agreement for functional therapeutics high-throughput antibody discovery platform that enables identification of antibodies for rare events for discovery of therapeutic antibodies for GI & Oncology therapeutic areas.
HitGen	China	Agreement that HitGen will apply its advanced technology platform, based on DNA-encoded library design, synthesis and screening, to discover novel leads which will be licensed exclusively to Takeda.
Isogenica	UK	Agreement for the access to a sdAb platform to generate a toolbox of VHH to various immune cells and targets for pathway validation and pipeline development across Oncology and GI portfolio.
Numerate	U.S.	Agreement for joint-discovery programs aimed at identifying clinical candidates for use in Takeda's core therapeutic areas: oncology, gastroenterology, and central nervous system disorders, which is using its AI-driven platform, from hit finding and expansion through lead design/optimization and ADME toxicity modeling.
Portal Instruments	U.S.	Agreement for the development and commercialization of Portal's jet injector drug delivery device for potential use with Takeda's investigational or approved biologic medicines.
Recursion Pharmaceuticals	U.S.	Agreement to provide pre-clinical candidates for Takeda's TAK-celerator™ development pipeline.
Schrödinger	U.S.	Agreement for the multi-target research collaboration combining Schrödinger's in silico platform-driven drug discovery capabilities with Takeda's deep therapeutic area knowledge and expertise in structural biology.
Seattle Collaboration	U.S.	Agreement for SPRInT (Seattle Partnership for Research on Innovative Therapies) to accelerate the translation of Fred Hutchinson Cancer Research Center's and University of Washington's cutting-edge discoveries into treatments for human disease (focusing on Oncology, GI and Neuroscience).
Stanford University	U.S.	Collaboration agreement with Stanford University to form the Stanford Alliance for Innovative Medicines to more effectively develop innovative treatments and therapies.
Tri-Institutional Therapeutics Discovery Institute (Tri-I TDI)	U.S.	Agreement for the collaboration of academic institutions and industry to more effectively develop innovative treatments and therapies.

<sup>‡</sup> Executed since April 1, 2019; \* List is not inclusive of all Takeda R&D collaborations.

## Completed Partnerships [Update disclosed since release of FY2018 results (May 14th, 2019)]

Partner	Country	Subject
Max Planck Institute	Germany	Agreement for the exclusive worldwide license under certain intellectual property to develop and commercialize the licensed products in rare disease field.
Bill & Melinda Gates Foundation	U.S.	Partnership to develop TAK-195, a Sabin-strain Inactivated Polio vaccine (sIPV) candidate, to support polio eradication in developing countries.
ArmaGen	U.S.	Worldwide licensing and collaboration agreement to develop AGT-182 (TAK-531/SHP631), an investigational enzyme replacement therapy for potential treatment of both the central nervous system (CNS) and somatic (body-related) manifestations of Hunter syndrome.

### ■ Clinical study protocol summaries

Clinical study protocol summaries are disclosed on the English-language web-site (<https://takedaclinicaltrials.com/>) and clinical study protocol information in the Japanese-language is disclosed on the Japanese-language web-site (<https://www.takeda.com/jp/what-we-do/research-and-development/takeda-clinical-trial-transparency/>).

We anticipate that this disclosure will assure transparency of information on Takeda's clinical trials for the benefit of healthcare professionals, their patients and other stakeholders, which we believe will contribute to the appropriate use of Takeda's products worldwide.



**Takeda Pharmaceutical Company Limited**