



Become A Social Innovator

Q3 FY2021 Financial Results
Santen Pharmaceutical Co., Ltd.

Presentation: February 10, 2022

Speakers

Presentation/Q&A



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Chief Executive Officer



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Forward-looking statements

- Materials and information provided in this announcement include so-called "forward-looking statements". The earnings forecasts and other forward-looking statements herein are based on information currently available to the Company and certain assumptions that we believe to be reasonable. The realization of these forecasts is subject to various risks and uncertainties. Please be aware that actual results could differ materially from these forward-looking statements. We assume no obligation to update the contents of this document from time to time.
- Risk factors include, but are not limited to, the following:
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CORE PRINCIPLE and WORLD VISION

CORE PRINCIPLE

天機に参与する

Tenki ni sanyo suru

“Exploring the secrets and mechanisms of nature in order to contribute to people’s health” *

WORLD VISION

Happiness with Vision

The Happiest Life for every individual, through the Best Vision Experience

* Santen’s original interpretation of a passage from the Zhongyong (The Doctrine of the Mean) by Confucius.

Santen 2030

Toward 2030 and beyond

**Santen's
VISION**

Become A Social Innovator

Orchestrate and mobilize key technologies and players around the world, to deliver happiness through vision.

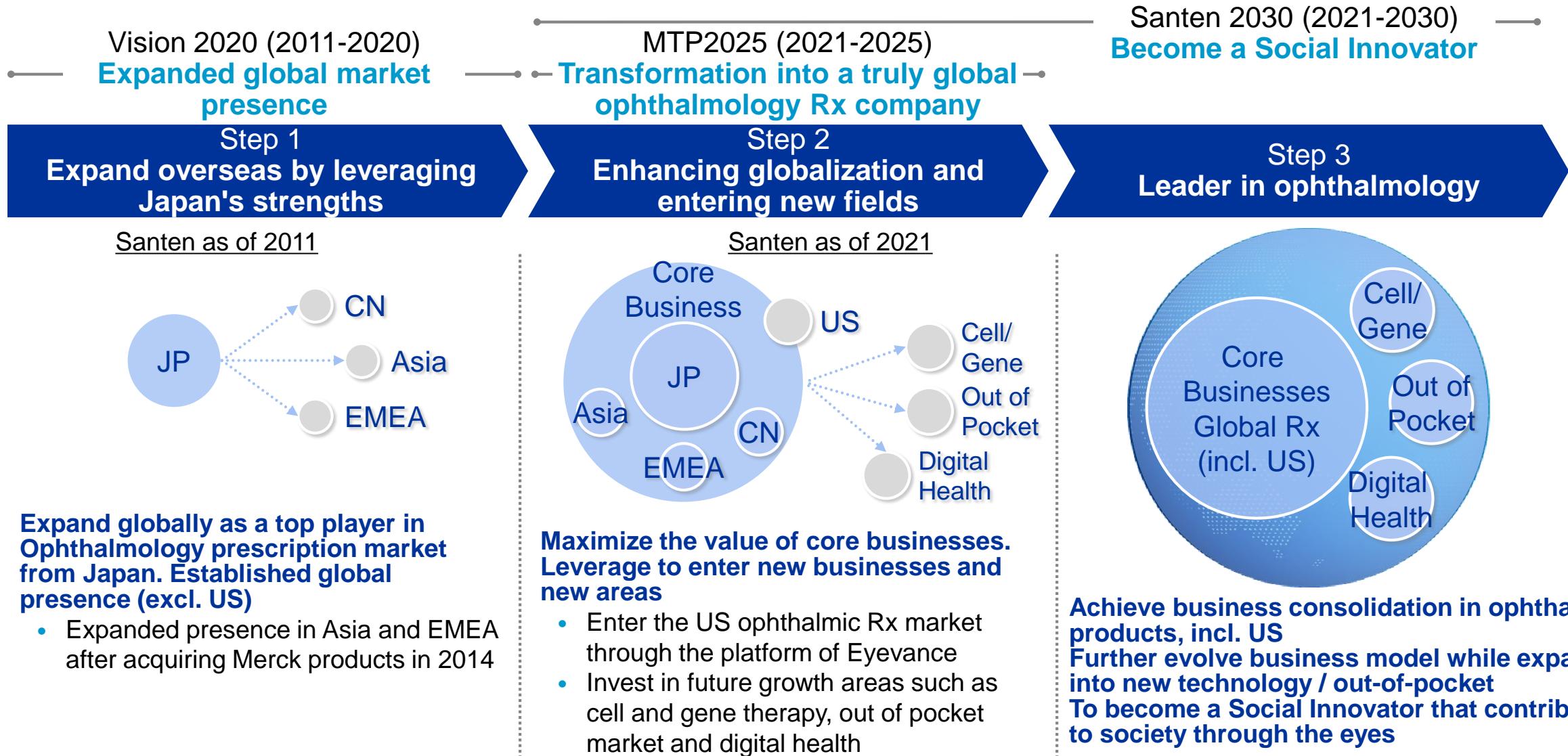
GOAL

Aim to reduce the loss of social and economic opportunities for people around the world due to eye conditions.

STRATEGY

- A Ophthalmology**
Innovation in Ophthalmology and Acceleration of Ecosystem Development
- B Wellness**
Awareness and Proactive Care toward Better Eye Condition
- C Inclusion**
Building Society that is Inclusive regardless of Visual Impairment

Evolution from Vision 2020 to Santen 2030



Agenda

1. Summary

2. Q3 FY2021 Financial Results

3. R&D Update

Appendix

First year of MTP2025: Implementing measures steadily based on strategy

1. Generally in line with MTP2025

- Expecting severe environment especially in Japan in short term, but aiming to achieve MTP objectives through group-wide growth

2. STN1011700: Aiming for the resubmission at the end of March

- The contract commercial manufacturing site for the formulation (US) has already responded to the unresolved inspection observations (GMP non-compliance) and plans to have the inspection by FDA
- Santen plans to have further clarification with FDA on the GMP issue above and others, and then rapidly conduct the resubmission

3. Steadily progress on growth strategy measures over mid-to-long term

- Enriching pipeline for future growth
- Steadily advancing capital investment such as Plant/DX (obtained “Digital Transformation Certification” from METI*¹ as of Feb.1)

*1:Ministry of Economy, Trade and Industry

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Sales increased 8% YoY. Operating profit decreased 2% YoY

		Q3 FY2020		Q3 FY2021		
(JPY billions)		Actual	vs Revenue	Actual	vs Revenue	YoY
IFRS	Revenue	181.8		195.8		+7.7%
	Cost of sales	75.9	42%	82.7	42%	+9.0%
	Gross margin	105.9	58%	113.1	58%	+6.8%
	SG&A expenses	52.8	29%	60.3	31%	+14.2%
	R&D expenses	17.7	10%	18.8	10%	+6.5%
	Amortization on intangible assets associated with products	7.7	4%	7.3	4%	-6.3%
	Other income	0.5	0%	0.3	0%	-39.2%
	Other expenses	1.3	1%	0.7	0%	-49.2%
	Operating profit	26.9	15%	26.4	13%	-2.0%
	Finance income	1.0	1%	1.2	1%	+19.2%
	Finance expenses	1.1	1%	0.7	0%	-36.0%
	Share of loss of Investments accounted for using equity method	0.2	0%	1.2	1%	-
	Profit before tax	26.6	15%	25.7	13%	-3.5%
	Income tax expenses	5.8	3%	6.4	3%	+10.5%
<i>Actual tax ratio</i>	21.7%		24.8%			
Net profit	20.8	11%	19.3	10%	-7.4%	
Core	Revenue	181.8		195.8		+7.7%
	Operating profit	36.4	20%	34.6	18%	-5.1%
	Net profit	28.3	16%	25.9	13%	-8.7%
	USD (JPY)	105.96		111.24		
	EUR (JPY)	122.34		130.80		
	CNY (JPY)	15.38		17.28		

Main factors of change

Revenue

+7.7% YoY

- Sales increased mainly in Japan and EMEA

Operating Profit (IFRS)

-2.0% YoY

- (-) Push-out of domestic sales promotion expenses (JPY 0.9 billion)
- (-) New consolidation of Eyevance
- (-) Strategic investment (cell therapy, etc.)

Net Profit (IFRS)

-7.4% YoY

- Increased strategic investment (equity method investment loss)

Operating Profit (Core)

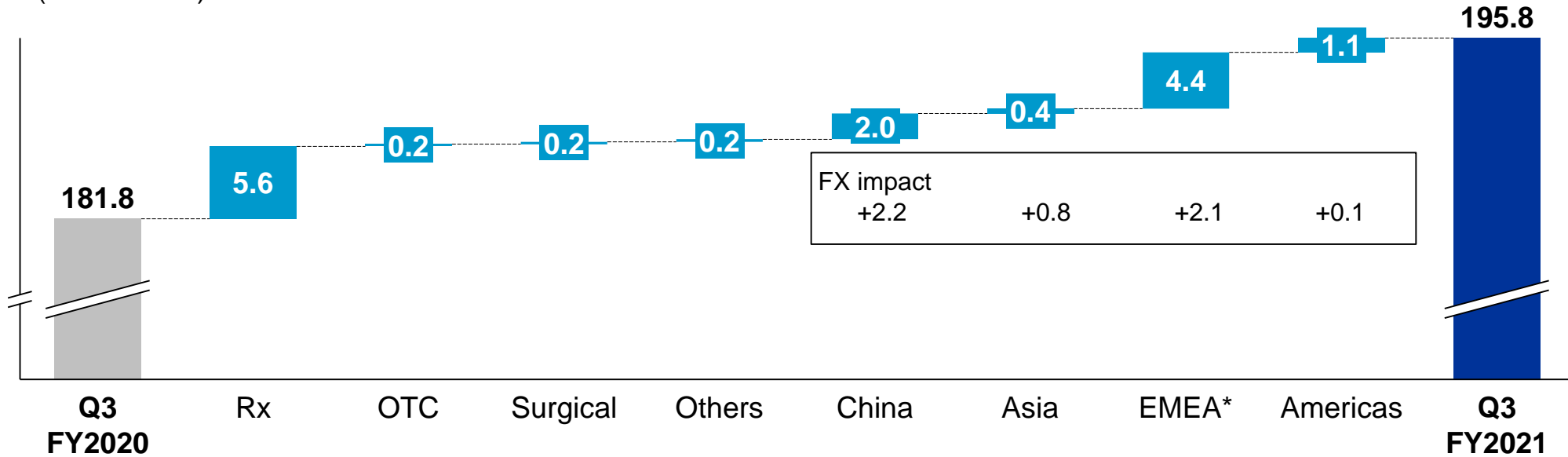
-5.1% YoY

Sales grew 8% YoY, main increases in Japan and EMEA

Increase/decrease in sales

(JPY billions)

Sales classified into countries or regions based on customer location



	Rx	OTC	Surgical	Others	China	Asia	EMEA*	Americas
Q3FY20	110.1	7.1	2.1	1.0	18.3	13.3	28.4	1.3
Q3FY21	115.8	7.3	2.3	1.2	20.3	13.7	32.8	2.4
YoY	+5.1%	+2.1%	+8.9%	+20.6%	+11.0%	+2.9%	+15.4%	+82.0%

Japan JPY 126.6 bil. YoY +5%

Overseas: JPY 69.2 bil. YoY +13%
(FX impact of JPY +5.3 bil.)

*EMEA: Europe, Middle East and Africa

Unchanged from May 11th. Focusing on maximizing 4th quarterly profit

(JPY billions)	FY2020		FY2021		
	Actual after retroactive correction	vs Revenue	Forecast	vs Revenue	YoY
Revenue	249.6		260.0		+4.2%
Cost of sales	98.2	39%	101.0	39%	+2.8%
Gross margin	151.4	61%	159.0	61%	+5.0%
SG&A expenses	79.6	32%	81.4	31%	+2.3%
R&D expenses	24.1	10%	26.0	10%	+7.8%
Amortization on intangible assets associated with products	10.7	4%	8.9	3%	-16.4%
Other income	16.0	6%	0.5	0%	-96.9%
Other expenses	40.9	16%	1.7	1%	-95.8%
Operating profit	12.2	5%	41.5	16%	+240.5%
Finance income	1.3	1%	0.9	0%	-33.2%
Finance expenses	1.5	1%	0.2	0%	-86.6%
Investment loss by equity method	0.4	0%	1.2	0%	+235.5%
Profit before tax	11.7	5%	41.0	16%	+250.8%
Income tax expenses	2.6	1%	10.5	4%	+309.8%
<i>Actual tax ratio</i>	21.9%		25.6%		
Net profit	9.1	4%	30.5	12%	+234.2%
ROE	3.0%		10%		--
Revenue	249.6		260.0		+4.2%
Operating profit	50.1	20%	52.0	20%	+3.8%
Net profit	37.5	15%	39.0	15%	+4.0%
USD (JPY)	105.95		105.00		
EUR (JPY)	123.73		125.00		
CNY (JPY)	15.61		16.50		

Revenue

+4% YoY

- Sales expected to increase YoY on sales growth in each region
- High likelihood of upside given foreign exchange rate levels

Operating Profit (IFRS)

+241% YoY

- Strengthen cost control in 4th quarter
- Absence of FY2020 impairment loss
- Also, increase in profit as a result of a decline in amortization of intangible assets related to products

ROE (IFRS)

- Improving capital efficiency (e.g. intangible asset management, reduction of investment securities)
- Aim ROE at 10%

Operating Profit (Core)

+4% YoY

- Aiming for well-balanced profit growth by maximizing sales
- SG&A expenses: control as a percentage of sales
- R&D expenses: within JPY 26.0 billion including strategic investment

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Clinical development firmly on track.

Expanding geographic availability, therapeutic area

◆ **Current pipeline: Steady progress**

STN1012600, STN1013900 (glaucoma)

STN1013400 (myopia)

◆ **New development products/regions added to pipeline
(initiating disclosure)**

Expanding ROCK inhibitors to Asia/Europe/China

Initiating clinical trials of early-stage development products including presbyopia and next generation drug for myopia

Many pipeline products advancing toward mid-to-long term growth

	STN1011700 <i>EYBELIS</i>	Received a complete response letter (CRL) from FDA Preparing re-filing	
	STN1012600 Sepetaprost	Achieved primary endpoint in P2 trial in US	
Glaucoma	STN1013900 <i>Rhopressa®/Rhokiinsa®</i>	Achieved LPI ^{*1} in P3 trial (long-term study) in Japan Started preparations for filing in Asia	Expanded licensed territories including Europe, China, etc.
	STN1014000 <i>Rocklatan®/Roclanda®</i>	Started preparations for filing in Asia	
	STN1013001 Catioprost	Achieved LPI in P3 trial in Europe/Asia	
Myopia	STN1013400 AFDX0250BS	Confirmed safety and tolerability in P1 trial in Japan Mydriasis not observed	
Presbyopia	STN1013600 Ursodeoxycholic acid	Started preparations for P1 trials in Japan	
Allergic conjunctivitis	STN1011402 Epinastine cream	Started preparations for P3 trials in Japan	
Uveitis	STN1010900 Sirolimus	Received recommendation from DMC ^{*2} on the results of interim analysis (futility analysis)	
FECD ^{*3}	STN1010904^{*4} Sirolimus eye drop	Started joint development on P2a/POC trial with ActualEyes Inc.	

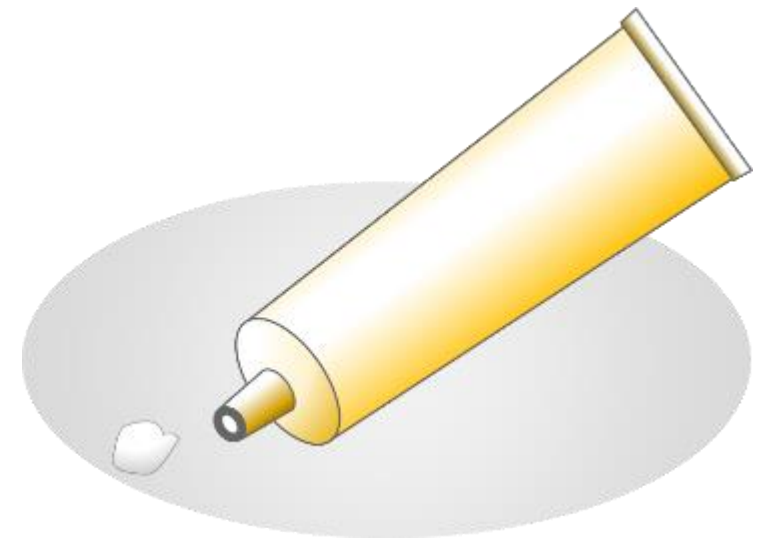
Ensure all-day comfort for patients, advancing the concept of proactive treatment

Target product profile

- Application: **Allergic conjunctivitis**
- Formulation: **Ophthalmic cream**
- Administration frequency:

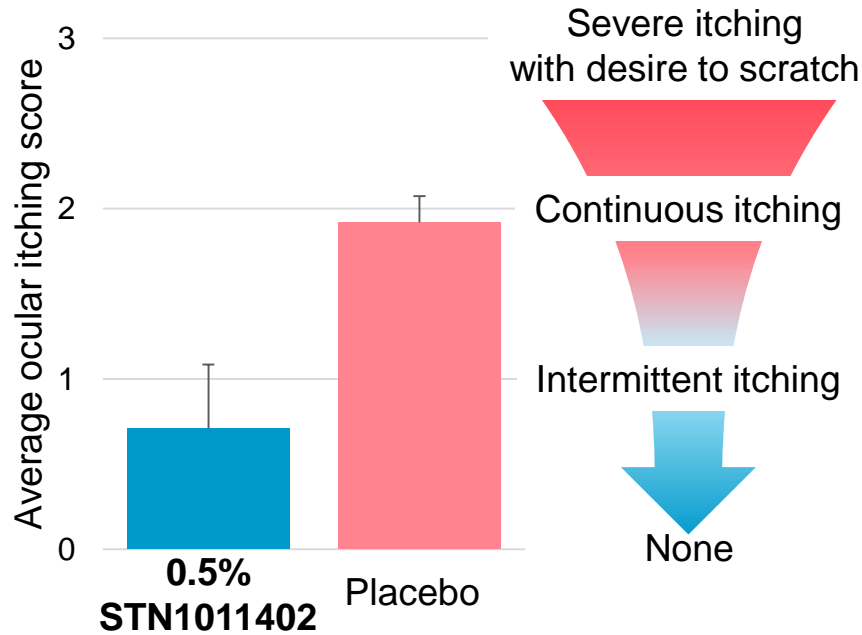
Once a day; same efficacy level

as ophthalmic solution maintained for one day



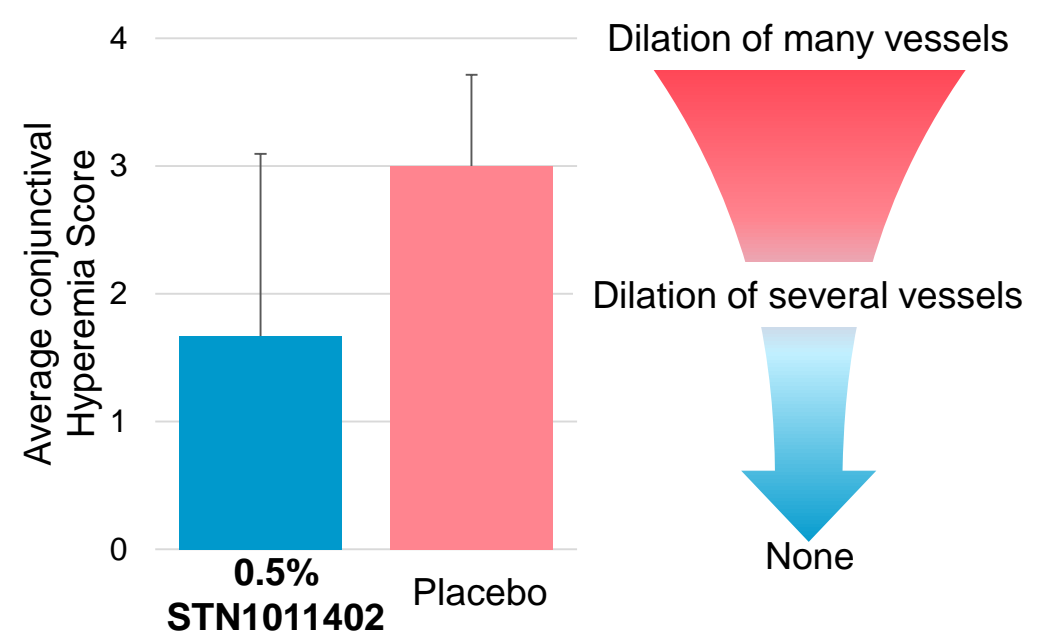
POC^{*1} study showed statistically significant difference between once a day STN1011402 and placebo

Efficacy on ocular itching after 25 hours



Treatment group (n)	Mean (SD)	Diff (STN1011402 VS placebo)	P value ^{*2}
0.5% STN1011402 (n=8)	0.71 (0.375)	-1.21 (0.396)	P=0.0001
Placebo (n=8)	1.92 (0.154)		

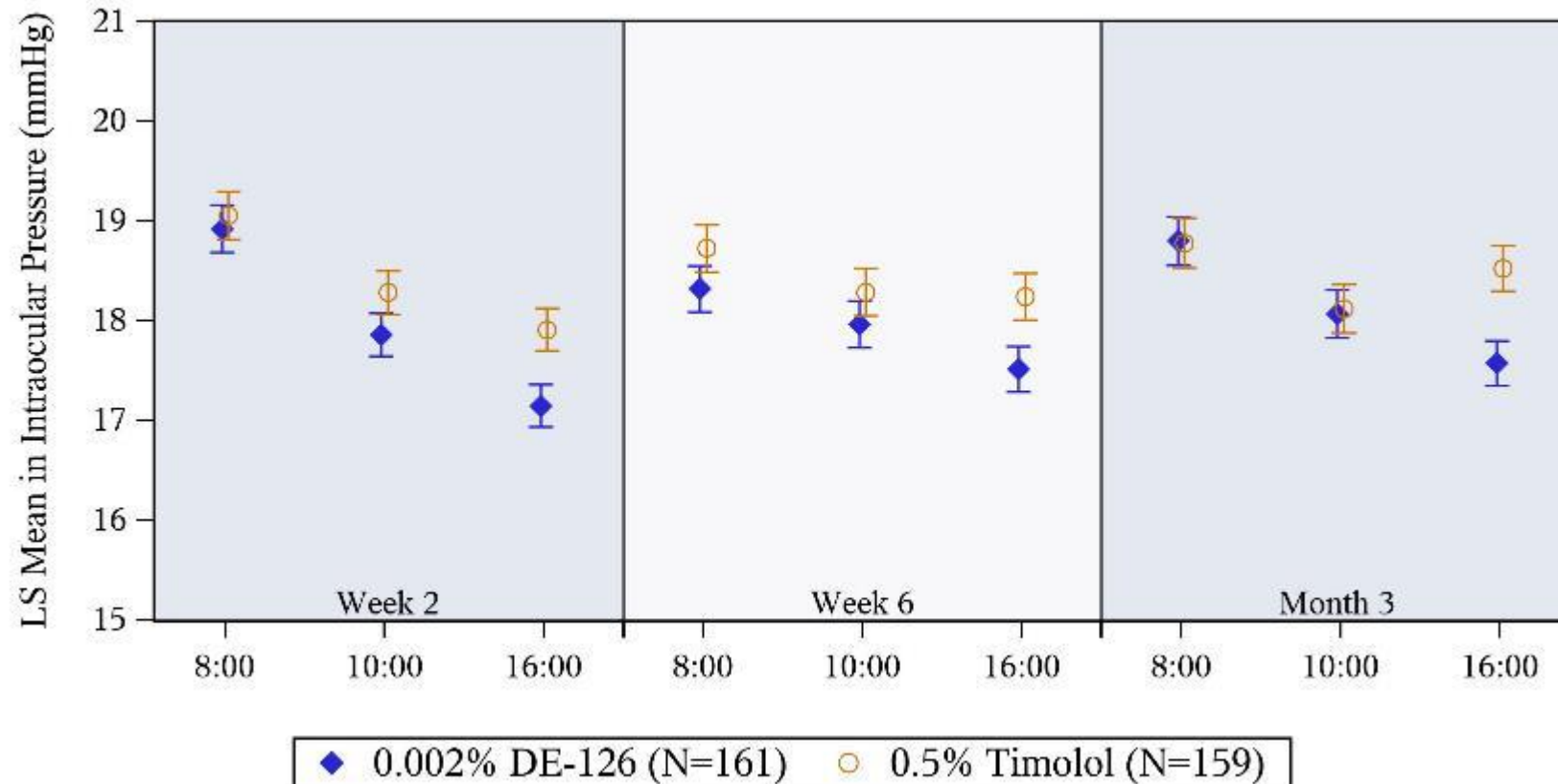
Efficacy on conjunctival hyperemia after 25 hours



Treatment group (n)	Mean (SD)	Diff (STN1011402 VS placebo)	P value ^{*2}
0.5% STN1011402 (n=8)	1.67 (1.425)	-1.33 (1.234)	P=0.0185
Placebo (n=8)	3.00 (0.713)		

Achieved primary endpoint in the timolol-controlled study

Intraocular Pressure: Least Square Mean (+/- Standard Error) by Analysis Visit and Timepoint (Study Eye)



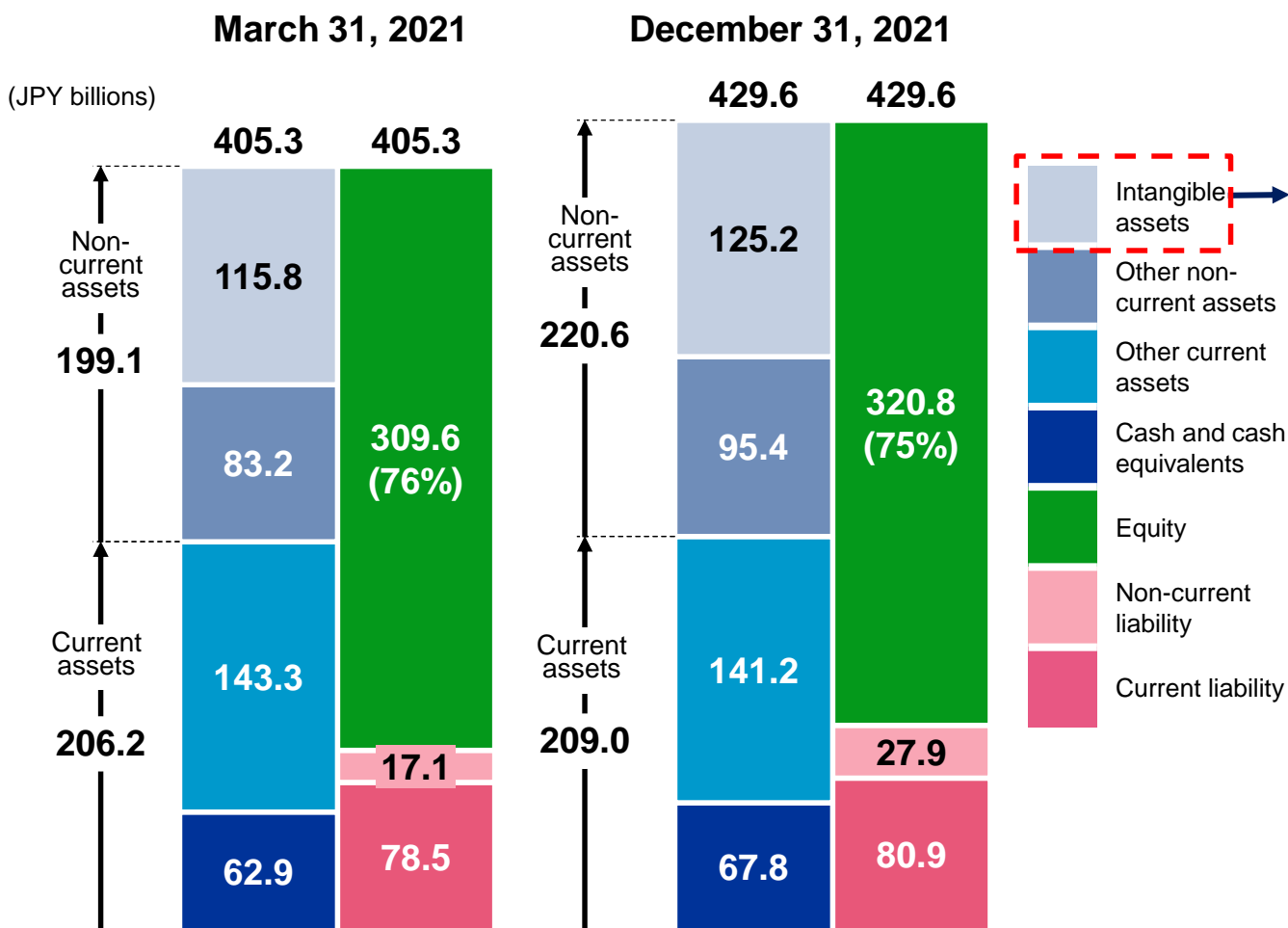
- Statistical non-inferiority of STN1012600 to timolol was confirmed at all points observed
- Intraocular pressure with STN1012600 at 16:00 of each observed day was statistically lower than that with timolol

Agenda

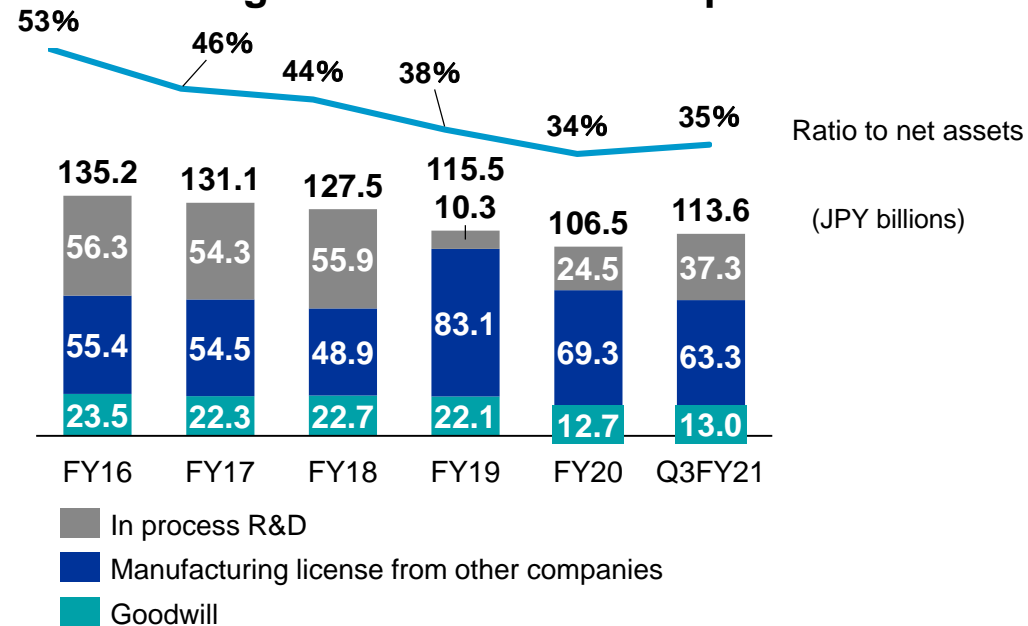
- 1. Summary**
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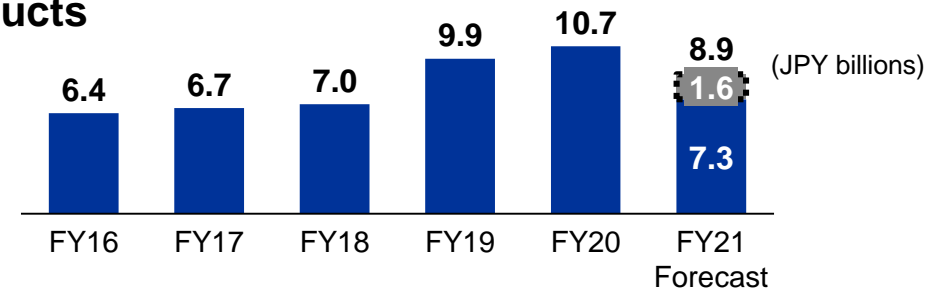
Achieve both soundness & safety while increasing in assets on the back of investments. Aim to raise ROE on improved capital turnover



Status of intangible assets related to products



Status of intangible asset amortization related to products



Quarterly consolidated statements of income

(JPY millions)	FY2020					FY2021					FY2021
	Q1	Q2	Q3	Q4	Full	Q1	Q2	Q3	Q4	Full	Full-year Forecast
Revenue	57,563	61,342	62,881	67,819	249,605	64,986	63,773	67,042			260,000
YoY	-2.7%	2.9%	-1.1%	14.5%	3.3%	12.9%	4.0%	6.6%			4.2%
Cost of sales	-24,741	-24,964	-26,192	-22,324	-98,221	-26,924	-25,943	-29,837			-101,000
YoY	2.6%	3.2%	0.5%	9.0%	3.6%	8.8%	3.9%	13.9%			2.8%
(Percent of revenue)	43.0%	40.7%	41.7%	32.9%	39.4%	41.4%	40.7%	44.5%			38.8%
Gross profit	32,822	36,377	36,690	45,495	151,384	38,062	37,829	37,205			159,000
YoY	-6.3%	2.6%	-2.1%	17.4%	3.2%	16.0%	4.0%	1.4%			5.0%
(Percent of revenue)	57.0%	59.3%	58.3%	67.1%	60.6%	58.6%	59.3%	55.5%			61.2%
SG&A expenses	-15,551	-17,691	-19,579	-26,732	-79,554	-20,447	-19,205	-20,671			-81,400
YoY	-3.1%	1.8%	0.9%	30.2%	8.4%	31.5%	8.6%	5.6%			2.3%
(Percent of revenue)	27.0%	28.8%	31.1%	39.4%	31.9%	31.5%	30.1%	30.8%			31.3%
R&D expenses	-5,616	-5,507	-6,530	-6,459	-24,112	-6,121	-6,218	-6,464			-26,000
YoY	-9.0%	5.1%	13.8%	4.4%	3.3%	9.0%	12.9%	-1.0%			7.8%
(Percent of revenue)	9.8%	9.0%	10.4%	9.5%	9.7%	9.4%	9.7%	9.6%			10.0%
Amortization on intangible assets associated with products	-2,448	-2,430	-2,866	-2,907	-10,650	-2,421	-2,366	-2,468			-8,900
YoY	-1.2%	-1.2%	15.7%	16.7%	7.6%	-1.1%	-2.6%	-13.9%			-16.4%
(Percent of revenue)	4.3%	4.0%	4.6%	4.3%	4.3%	3.7%	3.7%	3.7%			3.4%
Other income	176	174	174	15,483	16,007	120	82	116			500
Other expenses	-1,367	-253	330	-39,599	-40,889	-39	-473	-143			-1,700
Operating profit	8,016	10,670	8,219	-14,718	12,187	9,156	9,650	7,575			41,500
YoY	-13.3%	9.3%	-17.2%	—	-63.7%	14.2%	-9.6%	-7.8%			240.5%
(Percent of revenue)	13.9%	17.4%	13.1%	—	4.9%	14.1%	15.1%	11.3%			16.0%

Reprinted from Q3 FY21 Data Book

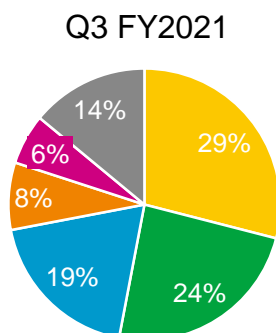
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(Percent of revenue)	57.0%	59.3%	58.3%	67.1%	60.6%	58.6%	59.3%	55.5%			61.2%
Operating profit	11,655	14,035	10,738	13,673	50,101	11,713	12,593	10,247			52,000
YoY	-8.9%	9.3%	-13.0%	13.5%	0.2%	0.5%	-10.3%	-4.6%			3.8%
(Percent of revenue)	20.2%	22.9%	17.1%	20.2%	20.1%	18.0%	19.7%	15.3%			20.0%

Q3 FY2021 revenue by region (YTD)

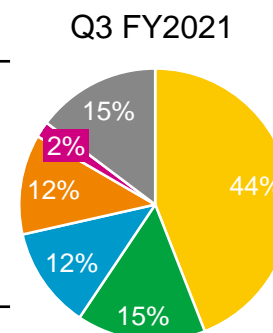
Consolidated

(JPY billions)	Q3 FY2020 (Ref.)	Q3 FY2021
EYLEA ^{*1}	51.0	55.9
Cosopt	16.2	16.4
Alesion ^{*2} (Incl. Alesion LX)	12.7	14.5
Other	102.0	109.0
Total	181.8	195.8



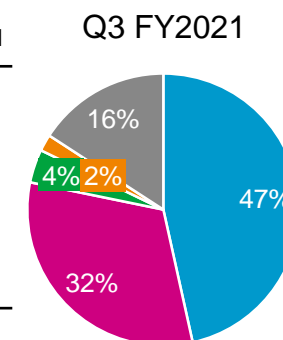
Japan

(JPY billions)	Q3 FY2020 (Ref.)	Q3 FY2021
EYLEA ^{*1}	51.0	55.9
Alesion ^{*2} (Incl. Alesion LX)	12.7	14.5
Diquas	9.6	10.3
Other	47.1	45.9
Total	120.4	126.6



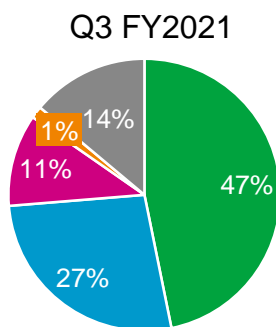
China

(JPY billions)	Q3 FY2020 (Ref.)	Q3 FY2021
Hyalein	7.2	7.0
Cravit	6.6	5.6
Diquas	0.4	2.6
Other	4.1	5.2
Total	18.3	20.3



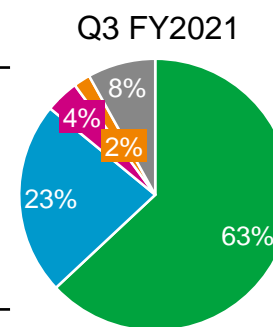
Asia

(JPY billions)	Q3 FY2020 (Ref.)	Q3 FY2021
Cosopt	3.3	3.8
Tapros	1.4	1.5
Diquas	1.1	1.3
Other	7.6	7.1
Total	13.3	13.7

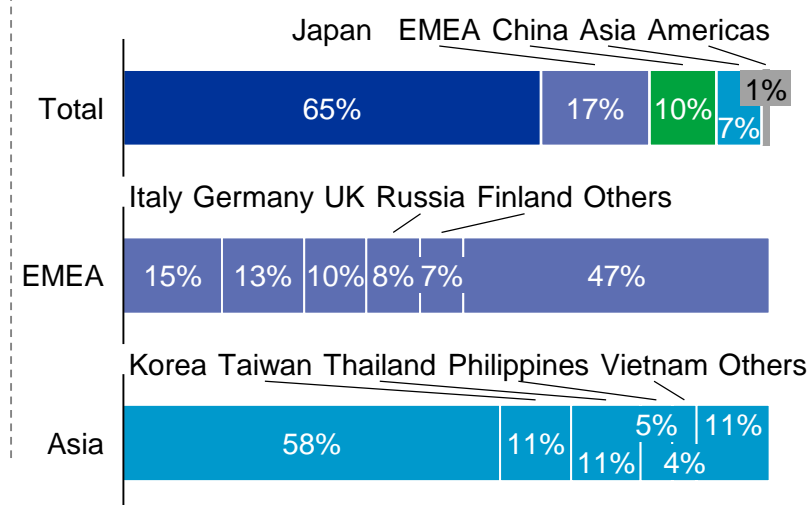


EMEA

(JPY billions)	Q3 FY2020 (Ref.)	Q3 FY2021
Cosopt	7.2	8.0
Tapros	5.1	5.2
Ikervis	2.7	3.8
Other	13.4	15.8
Total	28.4	32.8



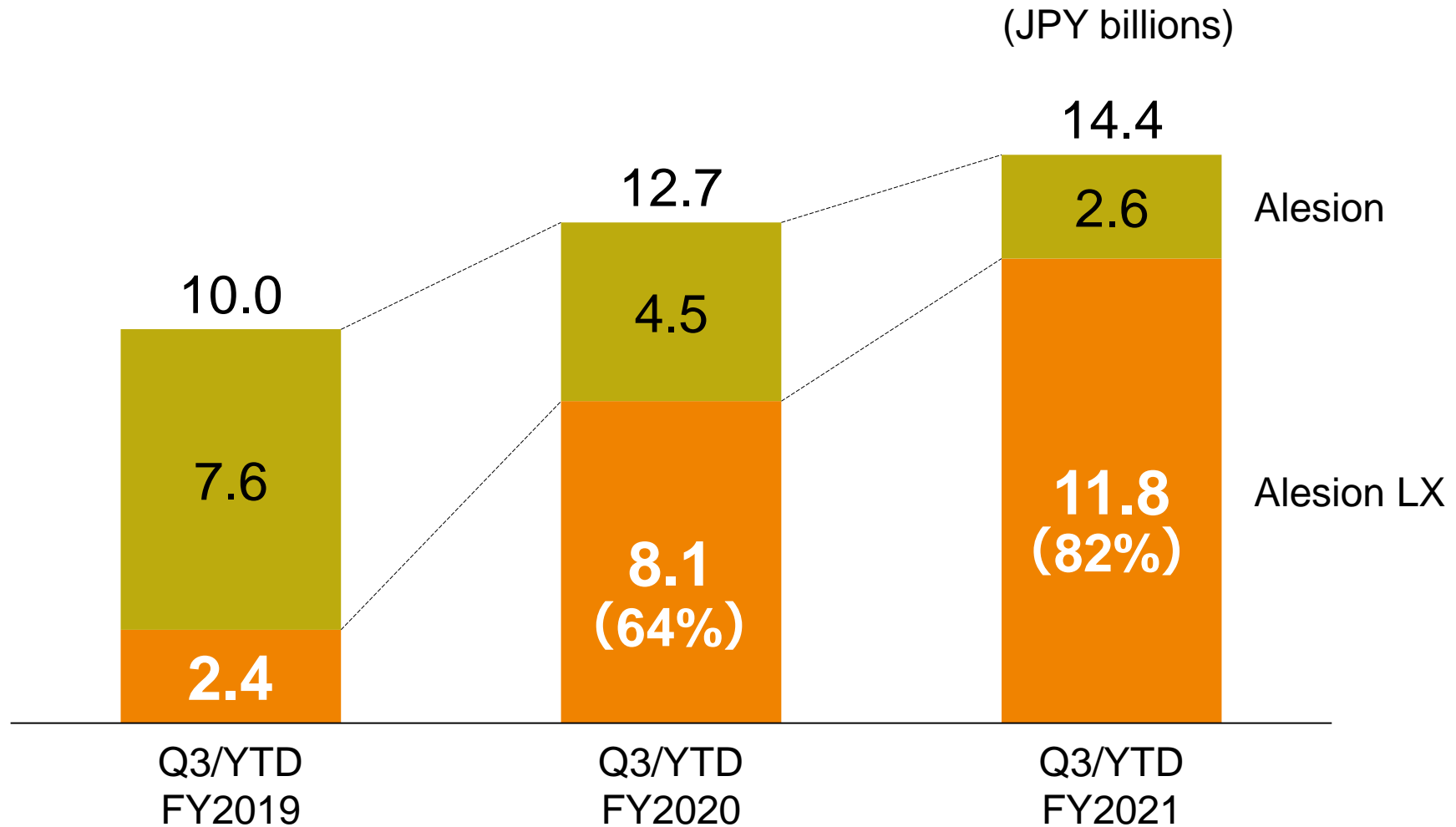
Revenue in each region (Q3 FY2021)



^{*1}EYLEA: Co-promoted product of Bayer Yakuhin, Ltd. (MAH)

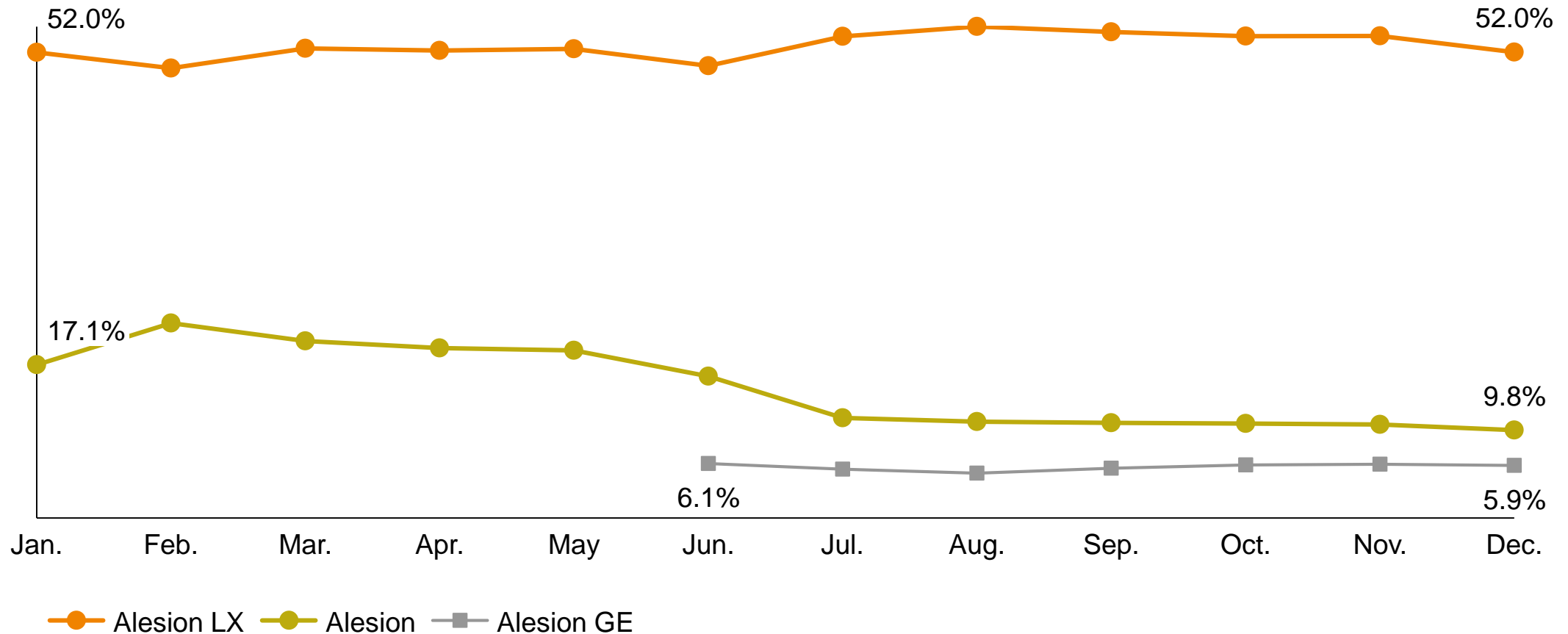
^{*2} Alesion: Trademark of alliance partner, Nippon Boehringer Ingelheim

Alesion revenue



Alesion market share (Jan-Dec, 2021)

Market Share in Allergy Market (Value Basis)

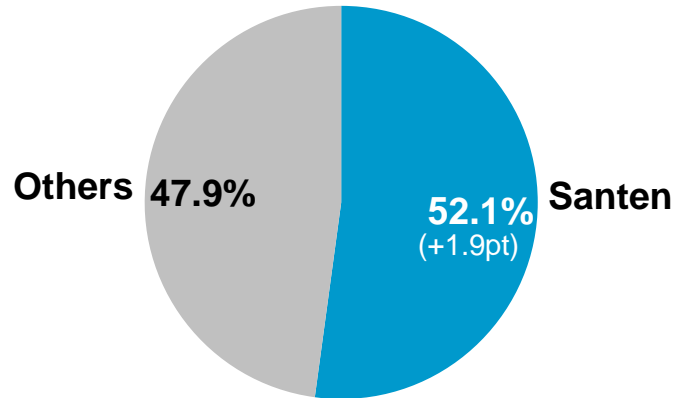


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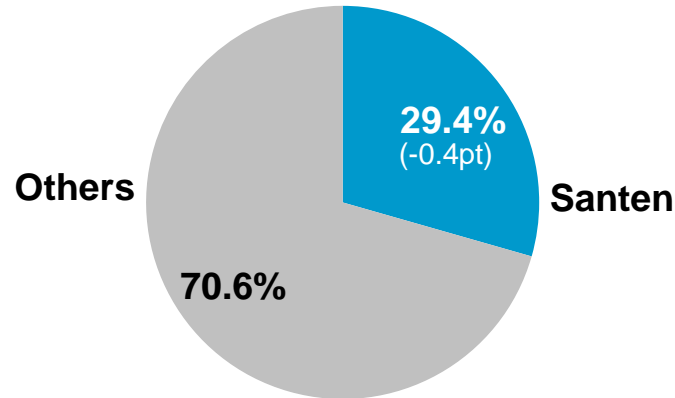
Remain No.1 for overall market and all segments

Segment: Market size
Graph: Market share (change from last year)

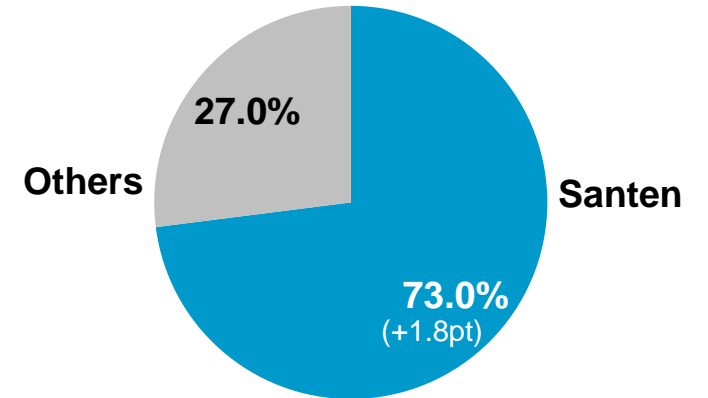
Total: JPY382.7bil



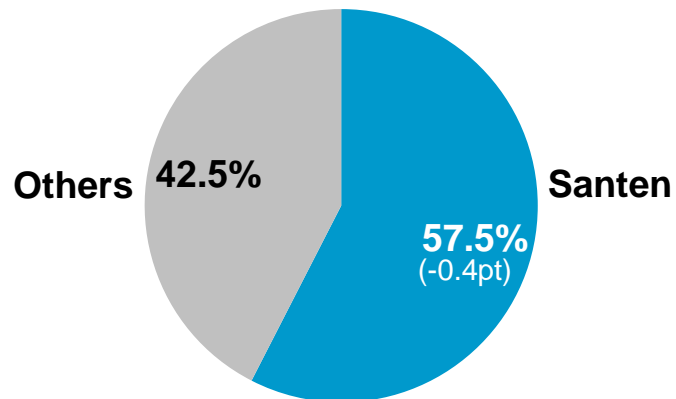
Glaucoma: JPY102.1bil



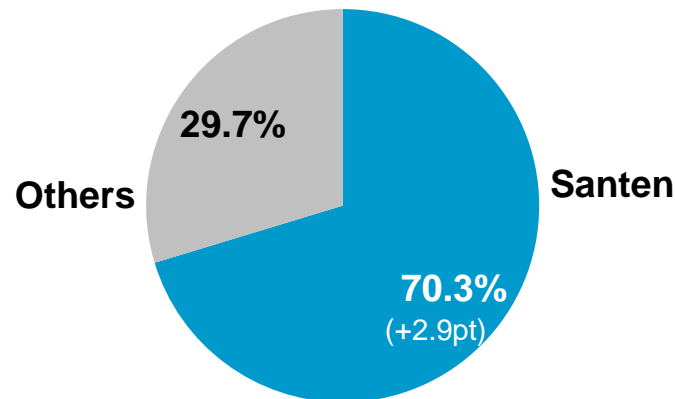
Retinal disorders*: JPY116.7bil



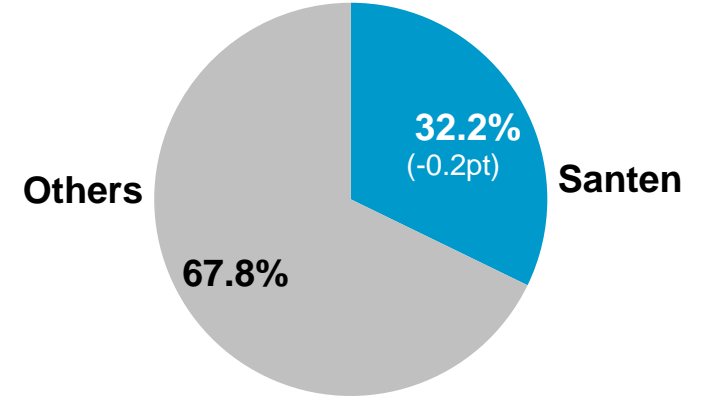
Corneal / dry eye: JPY42.5bil



Allergy: JPY62.0bil



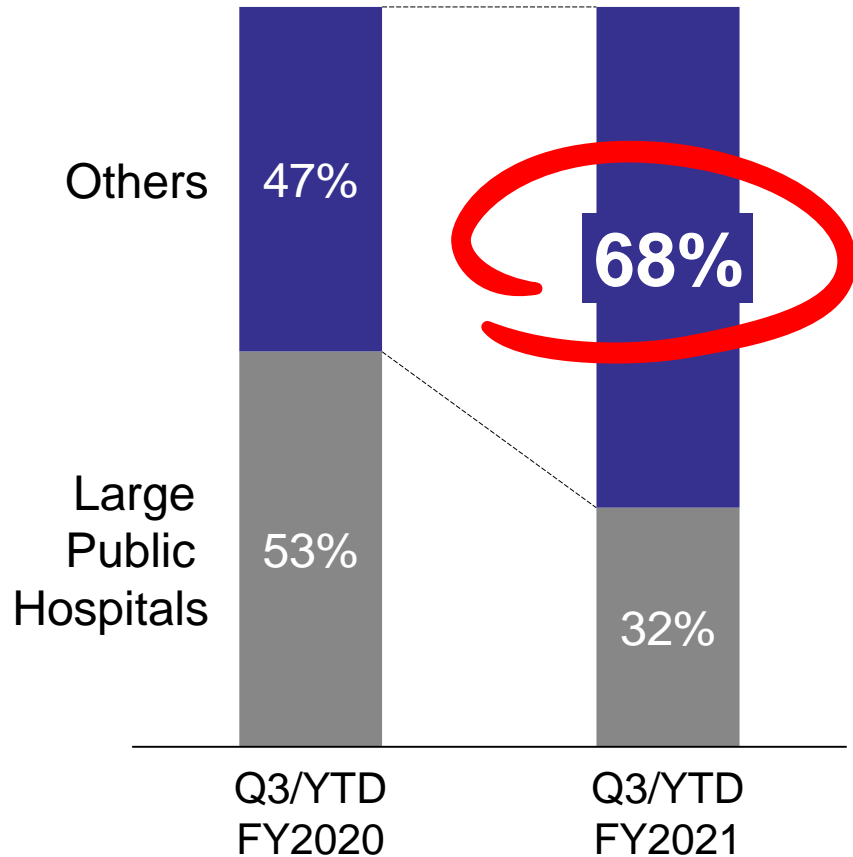
Anti-infection: JPY8.1bil



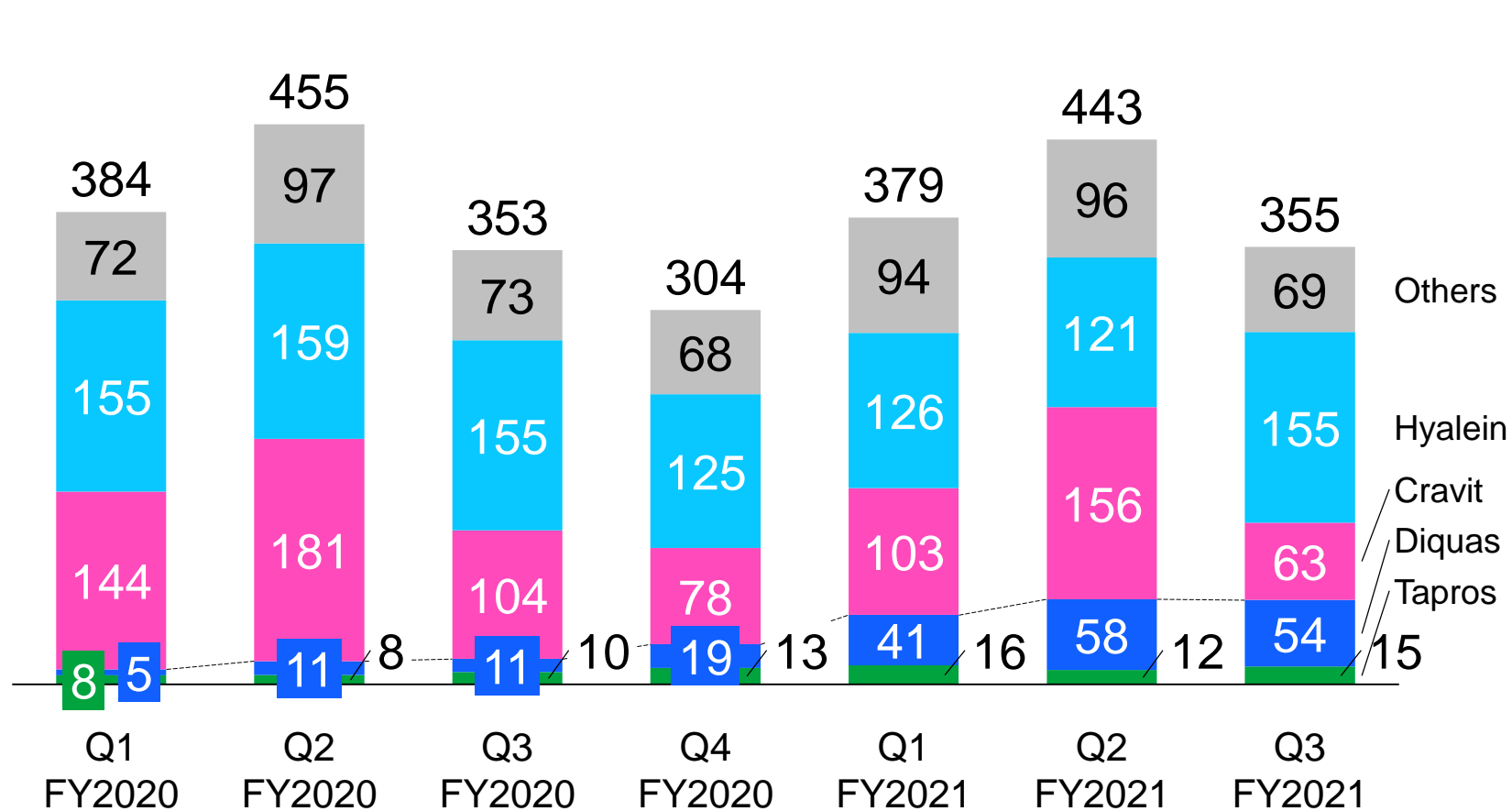
*Including co-promoted product (Anti-VEGF EYLEA) of Bayer Yakuhin, Ltd. (MAH) Source: Copyright © 2022 IQVIA. JPM 2020.1-2021.12; Santen analysis based on IQVIA data. Reprinted with permission.

Maintaining growth trend on channel shift and new products

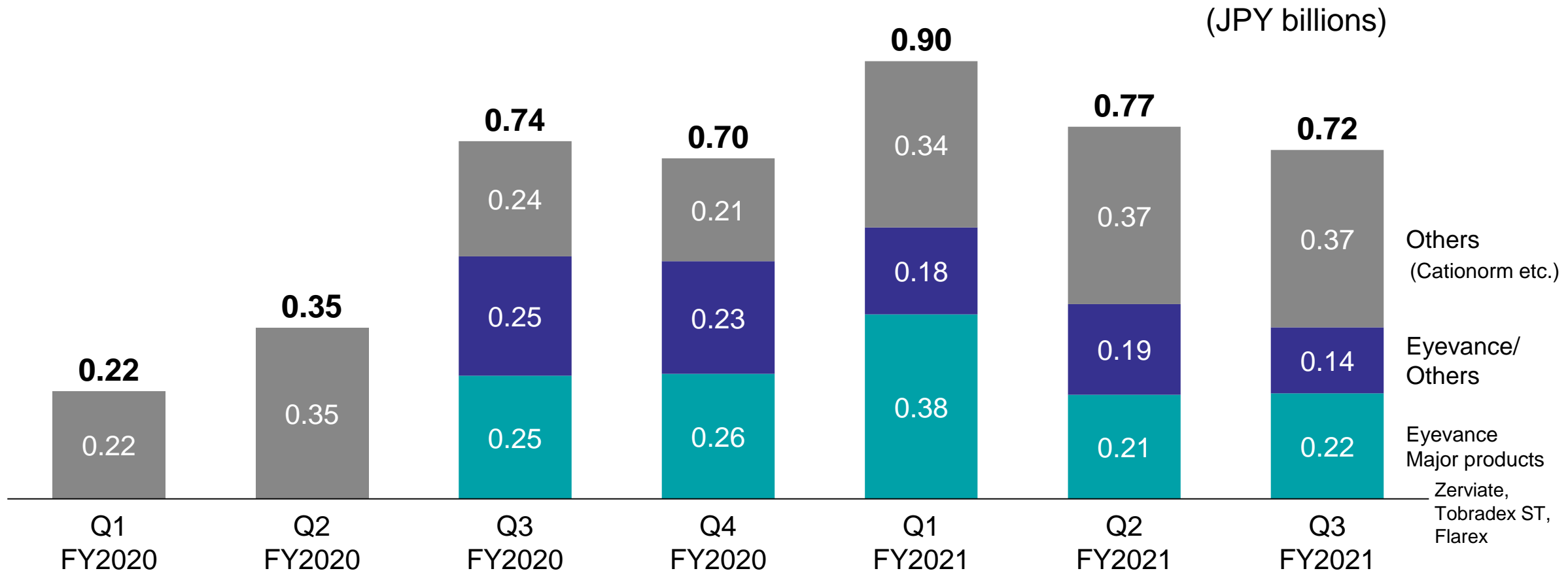
Revenue by Channel



Revenue by Product (RMB millions)



Americas business revenue trend



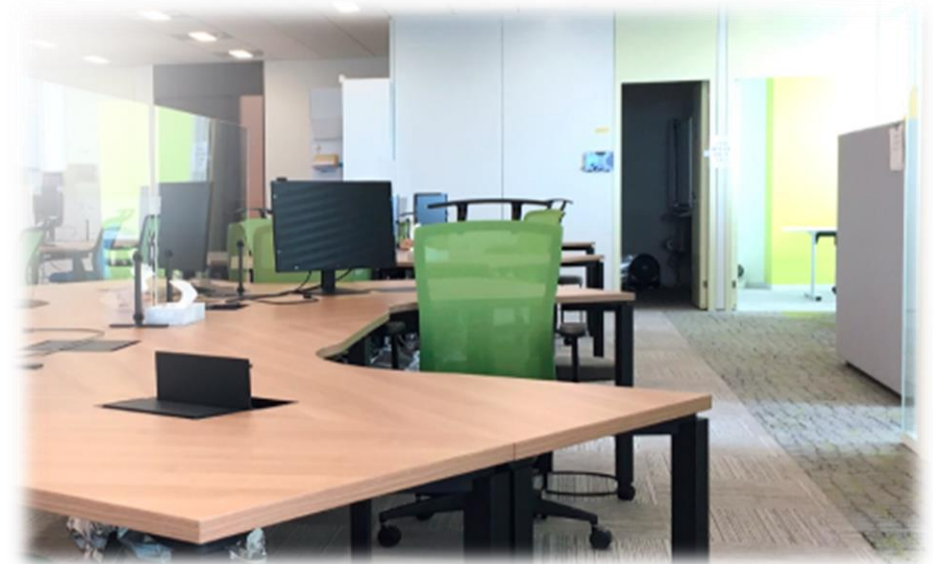
Implementing measures to strengthen management foundation

Obtained “Digital Transformation Certification” from METI as of Feb.1

**Reduced office space in HQ
Disposed real estate in Shimoshinjo, Osaka**



Digital Transformation Certification



Current status of global development (1)

As of January 2022
Updated information is in blue

Indication	Generic Name	Dev. Code	Major Region	Development Status
Glaucoma	Omidenepag isopropyl <i>EYBELIS</i>	STN1011700 DE-117	US	Received CRL from FDA. Preparing re-filing
			Japan	Launched
			Asia	Launched
	Sepetaprost	STN1012600 DE-126	US	P2 (met primary endpoint)
			Japan	P2b (dose finding study completed)
			Europe	P2 (exploratory study) <i>Plan: FY2022 P2 (exploratory study) completion</i>
	Implant device <i>PRESERFLO MicroShunt</i>	STN2000100 DE-128	Japan	Filed <i>Plan: FY2021 approval</i>
			Europe	Launched
			Asia	Approved <i>Plan: FY2022 launch</i>

License-out to Glaukos in Americas, Australia and New Zealand in May 2021.

US: FDA is obtaining additional input from practicing glaucoma surgeons to ensure a complete evaluation of the clinical data submitted in the PMA.

Canada: Approved.

Australia: Approved.

Current status of global development (2)

As of January 2022
Updated information is in blue

Indication	Generic Name	Dev. Code	Major Region	Development Status
Glaucoma	Netarsudil mesylate <i>Rhopressa®/Rhokiinsa®</i>	STN1013900 AR-13324	Japan	P3 <i>Plan: FY2023 P3 completion</i>
			Asia	<i>Plan: FY2021 filing</i>
			Europe	Approved. Considering launch plan
			China	Considering development plan
	Netarsudil mesylate /latanoprost (combination) <i>Rocklatan®/Roclanda®</i>	STN1014000 PG-324	Asia	<i>Plan: FY2022 filing</i>
			Europe	Approved. Considering launch plan
Japan China	Considering development plan			
Myopia	Atropine sulfate	STN1012700 DE-127	Japan	P2/3 <i>Plan: FY2023 P2/3 completion</i>
			China	P1 <i>Plan: FY2021 P1 completion</i>
			Asia	P2 (met primary endpoint)
		STN1012701 SYD-101	Europe	P3 (conducted by Sydnexis Inc.) <i>Plan: FY2024 P3 completion</i>
	AFDX0250BS	STN1013400	Japan	P1 (confirmed safety and tolerability)

Current status of global development (3)

As of January 2022
Updated information is in blue

Indication	Generic Name	Dev. Code	Major Region	Development Status
Presbyopia	Ursodeoxycholic acid	STN1013600	Japan	<i>Plan: FY2021 P1 start (Aiming for world wide development)</i>
Ptosis	Oxymetazoline hydrochloride	STN1013800 RVL-1201	Asia	<i>Plan: FY2022 Filing</i>
			Japan Europe China	Considering development plan
Retinitis pigmentosa	jCell	STN6000100	Japan Europe China Asia	P2 safety study (US, conducted by jCyte, Plan to complete in FY2022). Considering P3 plan
Allergic conjunctivitis	Epinastine HCl (Ophthalmic cream)	STN1011402	Japan	<i>Plan: FY2021 P3 start</i>
Vernal keratoconjunctivitis	Ciclosporin Verkazia	STN1007603 DE-076C	US	Approved <i>Plan: FY2021 Launch</i>
			China	Filed <i>Plan: FY2021 Approval</i>
Dry eye	Diquafosol sodium (long-lasting) Diquas	STN1008903 DE-089C	Japan	Filed <i>Plan: FY2022 Approval</i>
Meibomian gland dysfunction	Sirolimus (eye drop)	STN1010905	Japan	P2a <i>Plan: FY2022 P2a completion (Aiming for world wide development)</i>

Current status of global development (4)

As of January 2022
Updated information is in blue

<i>Indication</i>	<i>Generic Name</i>	<i>Dev. Code</i>	<i>Major Region</i>	<i>Development Status</i>
Glaucoma	Tafluprost / timolol maleate (combination) <i>TAPCOM / TAPTIQOM</i>	STN1011101 DE-111A	China	P3 <i>Plan: FY2023 P3 completion</i>
	Latanoprost	STN1013001 DE-130A Catioprost	Europe Asia	P3 <i>Plan: FY2022 P3 completion</i>
Uveitis	Sirolimus (intravitreal injection)	STN1010900 DE-109	US	P3 <i>Plan: FY2022 P3 completion</i>
			Japan	P3
			Europe	P3
			Asia	Filed

Continue working with FDA and contract commercial manufacturing site for the formulation (US), aiming for the resubmission as rapidly as possible

November 2021 Received the Complete Response Letter (CRL)

Essential Requirement:

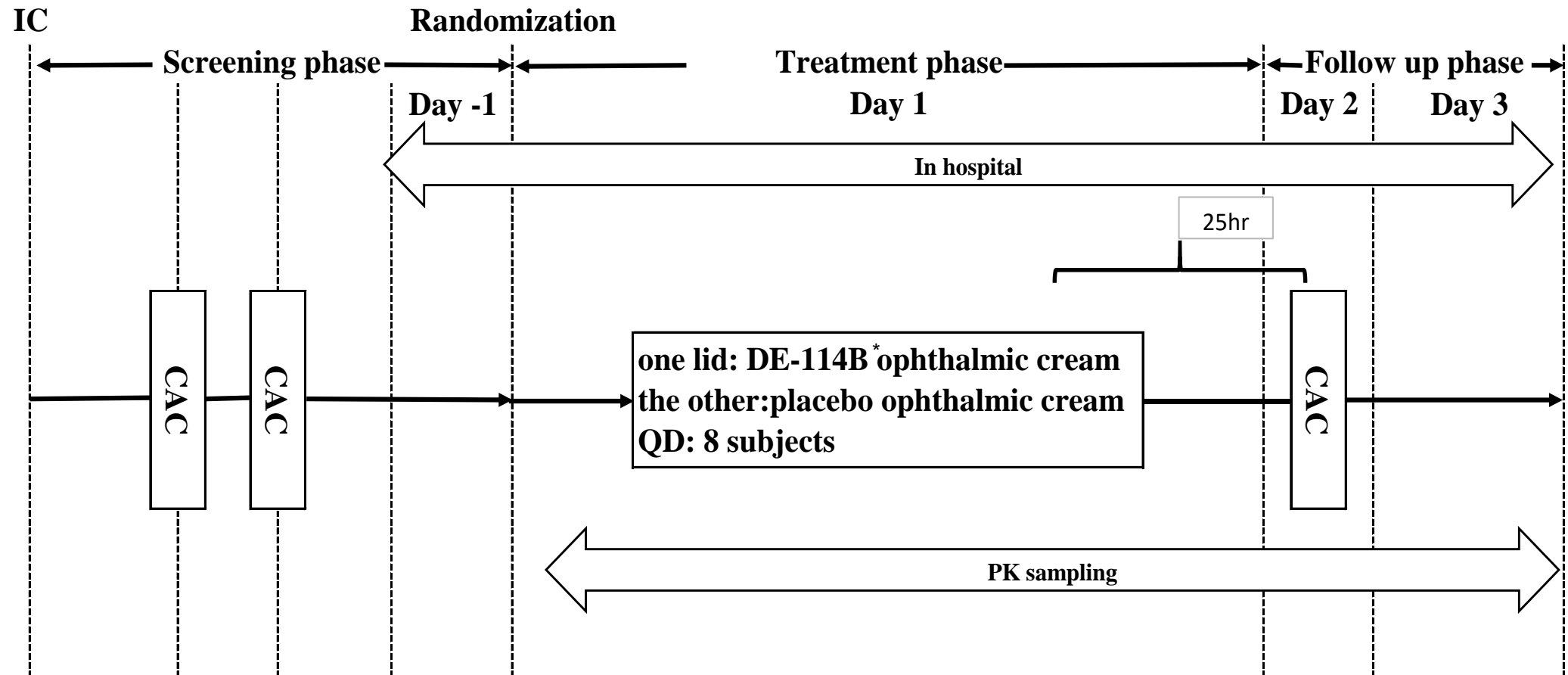
The unresolved inspection observation (GMP non-compliance) at the contract commercial manufacturing site for the formulation (US) must be resolved, which was found in the inspection for other company's product.

(The observation are ordinary issues, which has impacted the review of STN1011700)

- Continue the negotiation with the contractor on the following points
 - ✓ Actions for the unresolved inspection observations
 - ✓ Whether the inspection is to be conducted or not
 - ✓ Timing of the inspection
- In parallel, the communication with FDA on the GMP issues above and some others has continued toward the resubmission

STN1011402: POC study

Designed as Conjunctival Allergen Challenge (CAC) study



*STN1011402

The level of antigen induced allergy (scoring)

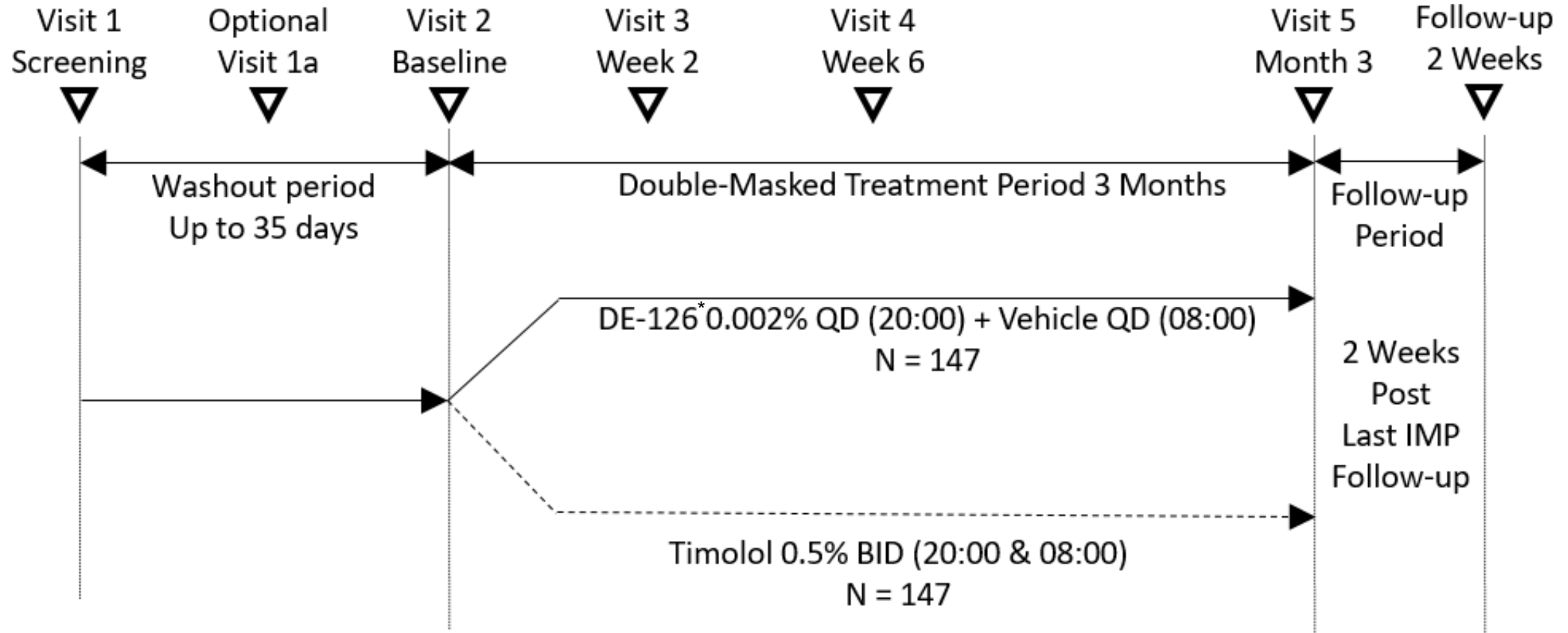
Objective symptoms	Score	Evaluation of the Level
Ocular itching	0	None
	1	Intermittent itching
	2	Continuous itching
	3	Severe itching with desire to scratch (however, it should not interfere with the subject's daily work)
	4	Incapacitating itching with an irresistible urge to scratch (it interferes with the subject's daily work)

Objective symptoms	Score	Evaluation of the Level
Bulbar conjunctival hyperemia	0	None
	1	Dilation of several vessels
	2	Dilation of many vessels
	3	Vasodilatation of all vessels, making it difficult to see the whites of the eyes
Palpebral conjunctival hyperemia	0	None
	1	Dilation of several vessels
	2	Dilation of many vessels throughout the palpebral conjunctiva (superior & inferior)
	3	Hyperemia of the entire palpebral conjunctiva (superior & inferior) with inability to distinguish individual blood vessels

Score of Conjunctival Hyperemia (CH)
 = Score of Bulbar CH + Score of Palpebral CH

STN1012600: Additional P2 study in US

Designed as timolol-controlled study



*STN1012600

STN1013600: Approaches to improve presbyopia

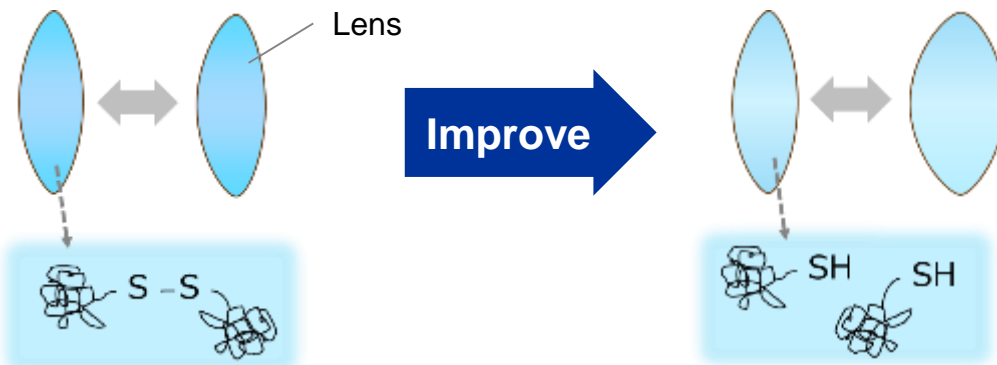
Presbyopia is the aging of the eye which starting around 40 years (aged eyes), which is caused by the decrease in the elasticity of lens and leads to the insufficiency of accommodation, and then results in progressively worsening ability to see close objects

I) Approach to improve the elasticity of lens

Breaking by the drug the excessive S-S bond in the lens, increase in the lens elasticity, and then improve the presbyopia

Stiff
Difficult to accommodate the focus by changing the thickness of the lens

Elastic
Easy to accommodate the focus by changing the thickness of the lens

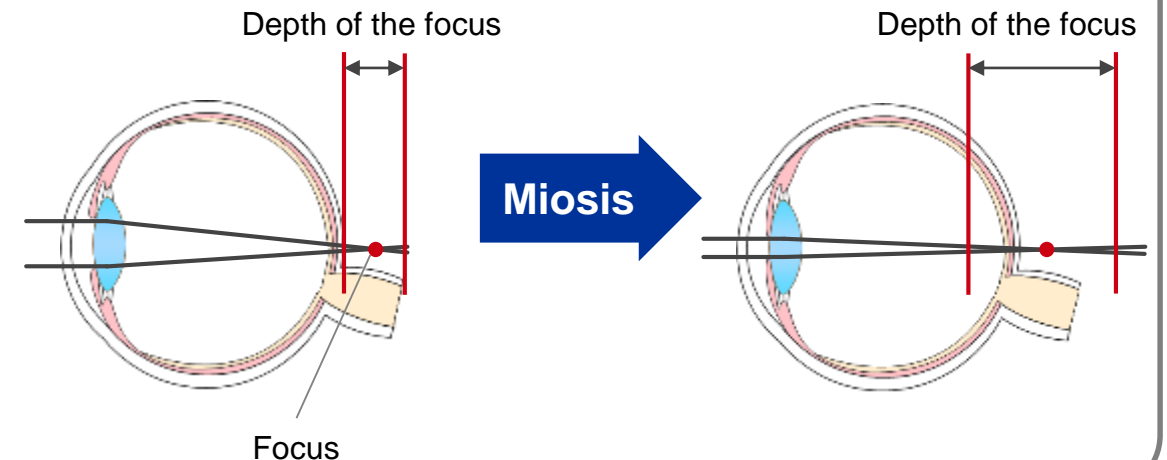


Supposed mode of action of STN1013600

II) Approach to utilize the pinhole effect

Narrowing the pupil, which extends the depth of the focus and expand the range where come into the focus, which results in the improvement of presbyopia. On the other hand, it may cause decrease the visual function at night or temporary myopia

Expand the focus range

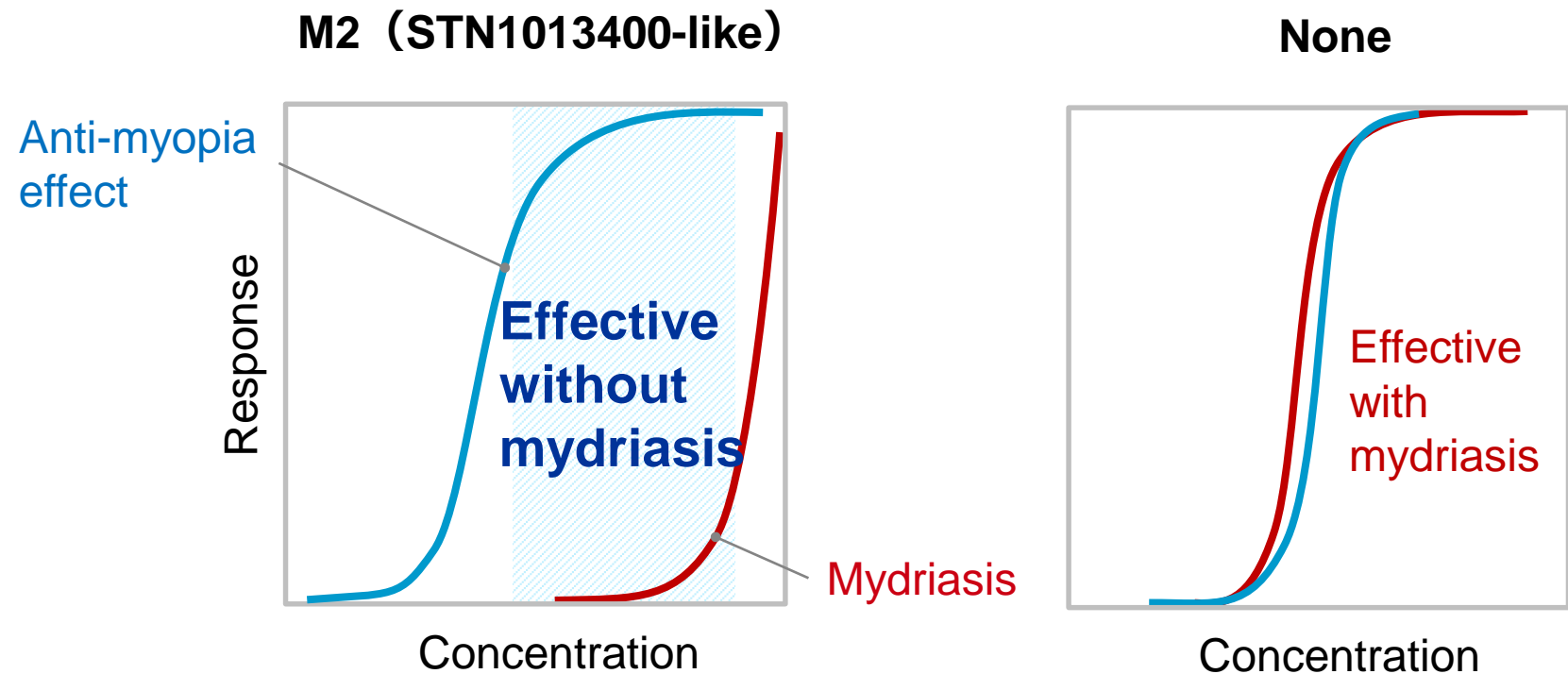


STN1013400: Pursuing an anti-myopia agent that does not cause mydriasis-induced glare, by increasing M2 selectivity

Receptor Subtype	M1	M2	M3	M4	M5
Anti-Myopia* ¹	No	YES	YES	No	No
Mydriasis* ²	No	No	YES	No	No

M receptor subtype selectivity:

Concentration-Response curve image:



STN1010904* (AE-001) :

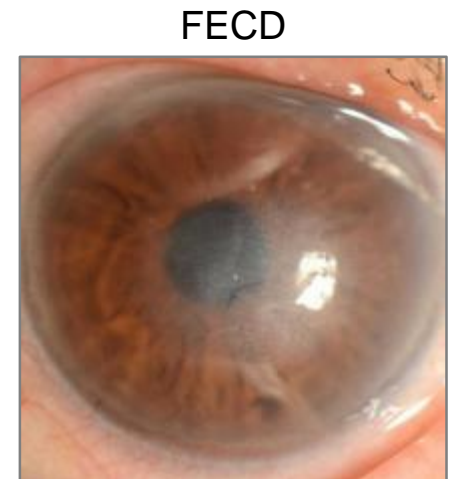
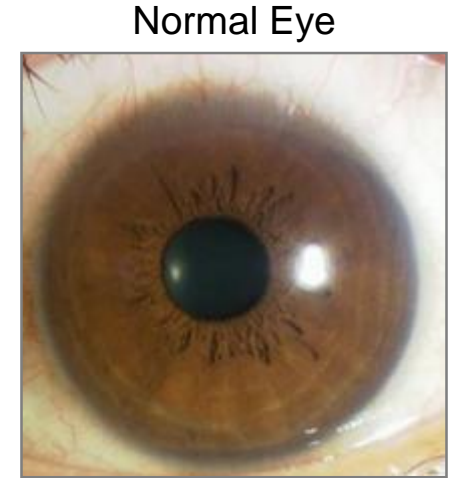
Co-development with ActualEyes of sirolimus eye drop for fuchs endothelial corneal dystrophy (FECD)




Target indication	Fuchs Endothelial Corneal Dystrophy (FECD)
Active pharmaceutical ingredient	Sirolimus (mTOR inhibitor)
Mode of action	Suppress the formulation of collagenous excrescences (guttae) on the surface of corneal endothelial layer and the apoptosis of endothelial cells in Fuchs Endothelial Corneal Dystrophy Suppress corneal edema, maintain the transparency of cornea and visual acuity
Phase 2 clinical study (Exploratory study)	Plan to conduct studies in US, France and India FDA consultation for Phase 2 study completed, based on the outcomes of Phase 1 study of sirolimus eye drop conducted by Santen
Expected study duration	Under consideration

* Development code (STN1010904) is the code which will be applied when Santen formally acquires the exclusive license after the completion of Phase 2 clinical study

STN1010904: Fuchs endothelial corneal dystrophy (FECD)

- ✓ Pathology Decrease in visual acuity due to corneal edema with abnormal decrease and dysfunction in corneal endothelial cell and light scattering by guttae. Progression could lead to bullous keratopathy, with visual acuity declining to the level of hand motion or light perception
- ✓ Cause Unknown. TCF4 gene mutation (Extension of triplet-repeat) is reported as a cause
- ✓ Treatment Corneal transplantation (no medicine available)
- ✓ Epidemiology High prevalence in Westerners, 4% of >40-years



Region	Prevalence	Demographic	Total prevalence	# of patients
	4% of >40-years ¹	47% of population >40-years ³	1.88%	6.2M
	4% of >40-years ¹	49% of population >40-years ³	1.96%	6.5M
	3.7% of >50-years ²	47% of population >50-years ⁴	1.74%	2.2M

1) Moshirfar M et al. Fuchs Endothelial Dystrophy. Treasure Island (FL):StatPearls Publishing;2021.
 2) Kitagawa K et al. Prevalence of primary cornea guttata and morphology of corneal endothelium in aging Japanese and Singaporean subjects. Ophthalmic Res. 2002;34(3):135-8.
 3) OECD.Stat. <https://stats.oecd.org/>
 4) Statistics Bureau, Ministry of Internal Affairs and Communications website. <https://www.stat.go.jp/english/index.html>

