

# Financial Results FY2016

(January to December 2016)

## Carna Biosciences, Inc.



**Stock Code : 4572**

- Japan Patent Office granted a patent for CDC7/ASK inhibitor in January.
- **Opened a research center “Carna Biosciences C-Lab” in South San Francisco, U.S. in February.**
- Entered into a research collaboration with Okayama University in March, aiming to characterize cancer stem cells derived from iPS.
- **Licensing of AS-141 (cancer drug candidate targeting CDC7) to ProNAi Therapeutics (North America, renamed Sierra Oncology) in May.**
- **Launched new lipid kinase products, DGKs (all ten isozymes) in July.**
- **Announced termination of the license agreement with Janssen Biotech, Inc. in August.**
- Announced new co-crystallography service collaborating with SARomics Biostructures (Sweden) and releasing ultra-pure proteins for crystallography collaborating with IniXium (Canada) in August.

- **The paper entitled “TNIK Inhibition Abrogates Colorectal Cancer Stemness” featuring NCB-0846, the Company’s clinical candidate, was published in Nature Communications in August.**

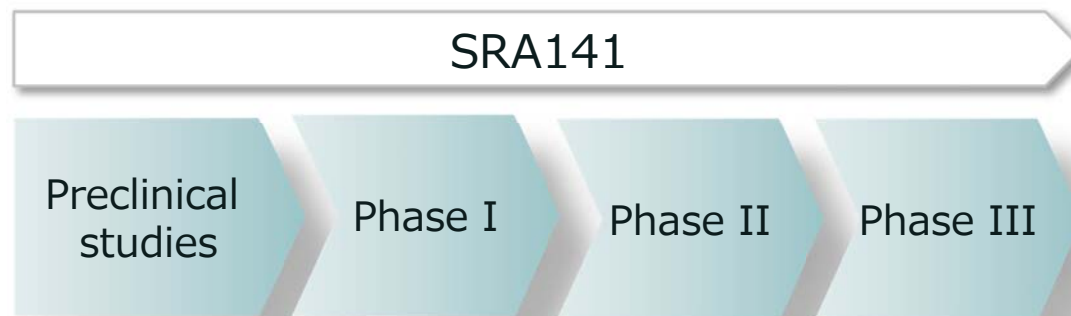
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January 2017~

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- Mexican Institute of Industrial Property granted a patent for CDC7 inhibitor in January.
- **Entered into a research collaboration with EpiBiome in January.**
- Japan Patent Office granted a patent for TNIK inhibitor in February

# SAR141(AS-141): Growth Driver



Initiate Phase I by  
the end of 2017



\$0.9M

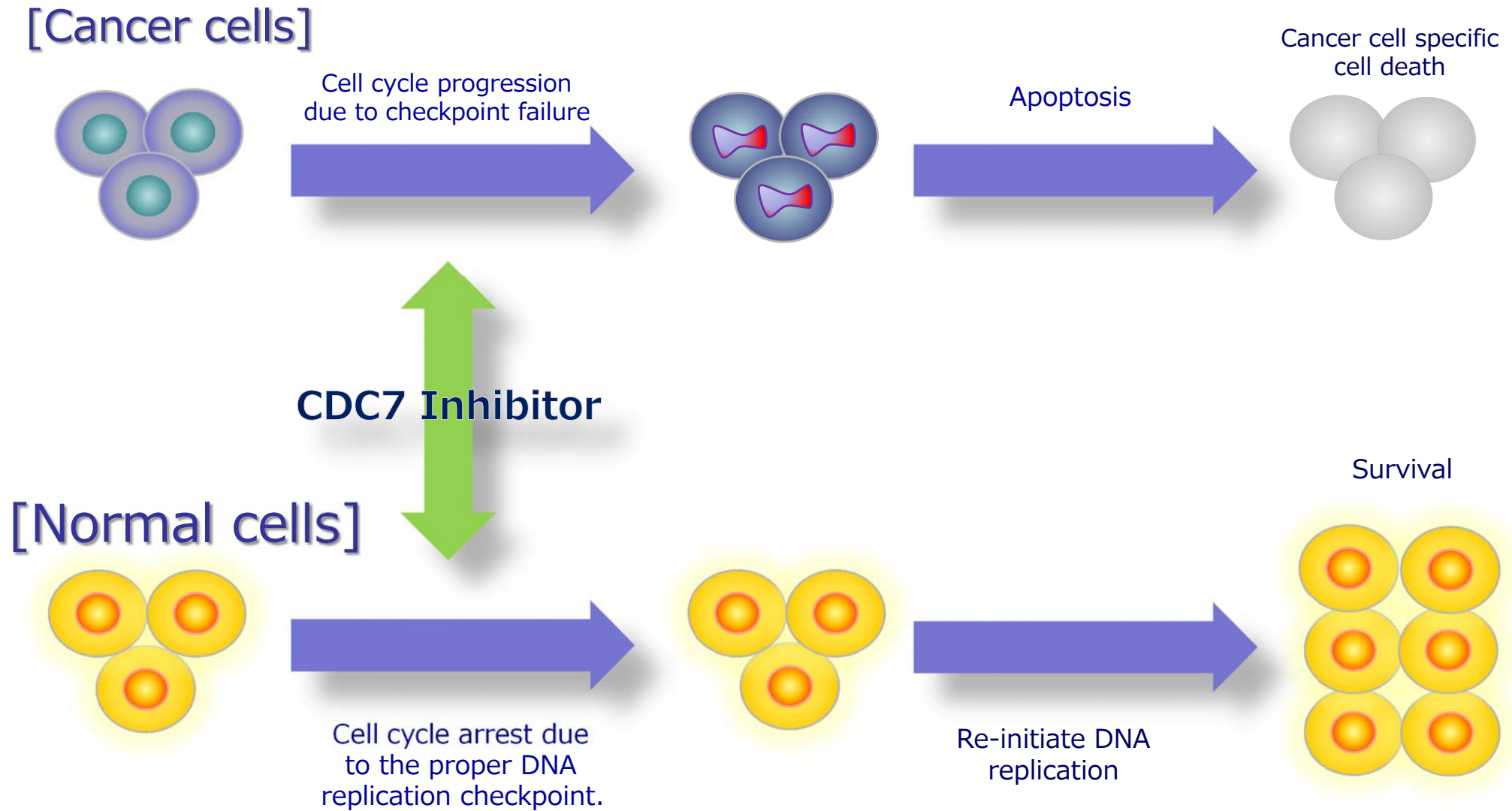


up to \$270M milestones  
& tiered single-digit royalties

**CARNA BIOSCIENCES**

\* ProNAi changed company name to Sierra Oncology

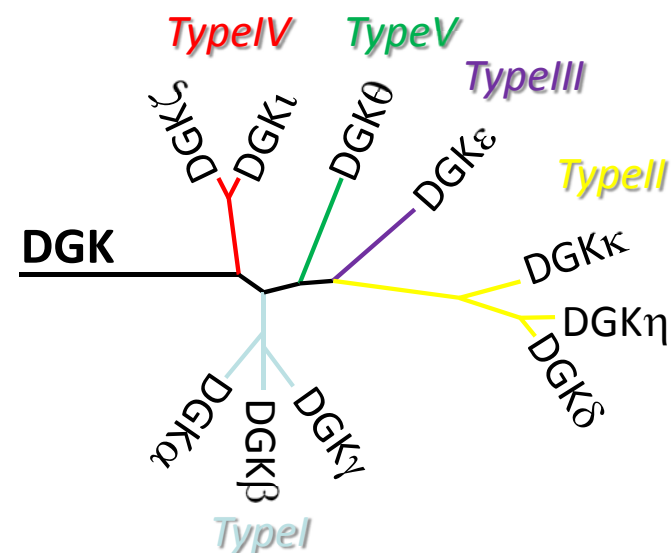
# Mechanism of CDC7 Inhibitor



# DGK: New Target for Drug Discovery



GST-DGK	ビオチン化DGK
DGK $\alpha$ (DGKA)	BTN-DGK $\alpha$ (DGKA)
DGK $\beta$ (DGKB)	BTN-DGK $\beta$ (DGKB)
DGK $\gamma$ (DGKG)	BTN-DGK $\gamma$ (DGKG)
DGK $\delta$ (DGKD)	BTN-DGK $\delta$ (DGKD)
DGK $\epsilon$ (DGKE)	BTN-DGK $\epsilon$ (DGKE)
DGK $\eta$ (DGKH)	BTN-DGK $\eta$ (DGKH)
DGK $\iota$ (DGKI)	BTN-DGK $\iota$ (DGKI)
DGK $\kappa$ (DGKK)	BTN-DGK $\kappa$ (DGKK)
DGK $\theta$ (DGKQ)	BTN-DGK $\theta$ (DGKQ)
DGK $\zeta$ (DGKZ)	BTN-DGK $\zeta$ (DGKZ)
10 products	10 products



[Current status and plan]

- ✓ Launched all ten active DGK proteins in July (provided only by Carna)
- ✓ Developed assay systems to measure DGK activities
- ⇒ **Boost sales by B2B marketing: large scale contracts for screening services and assay kits**

The effects of a novel compound, identified by research collaborators at the National Cancer Center and Carna scientists, on cancer stem cells was published in a leading scientific journal, Nature Communications.



## ARTICLE

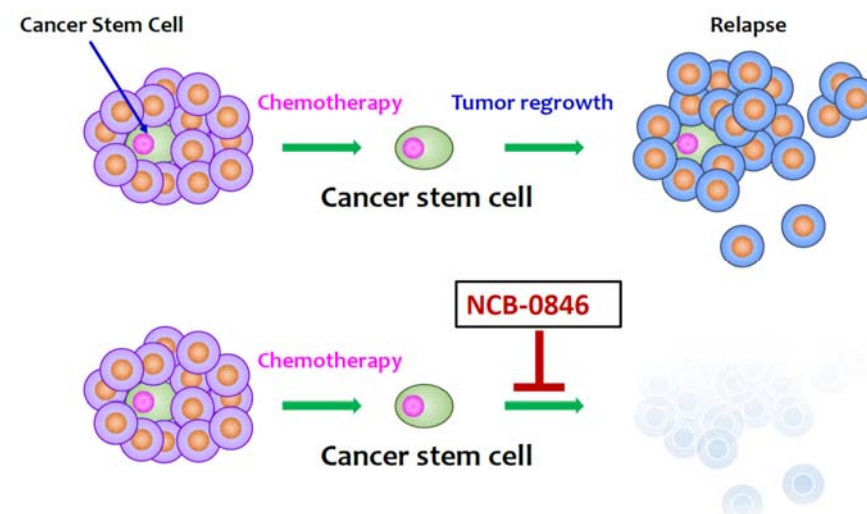
Received 28 Jan 2016 | Accepted 14 Jul 2016 | Published 26 Aug 2016

DOI: 10.1038/ncomms12586

OPEN

## TNIK inhibition abrogates colorectal cancer stemness

Mari Masuda<sup>1</sup>, Yuko Uno<sup>2</sup>, Naomi Ohbayashi<sup>3,\*</sup>, Hirokazu Ohata<sup>4,\*</sup>, Ayako Mimata<sup>1,\*</sup>, Mutsuko Kukimoto-Niino<sup>3</sup>, Hideki Moriyama<sup>2</sup>, Shigeki Kashimoto<sup>2</sup>, Tomoko Inoue<sup>2</sup>, Naoko Goto<sup>1</sup>, Koji Okamoto<sup>4</sup>, Mikako Shirouzu<sup>3</sup>, Masaaki Sawa<sup>2,\*</sup> & Tesshi Yamada<sup>1,\*</sup>



### <Significance of the publication>

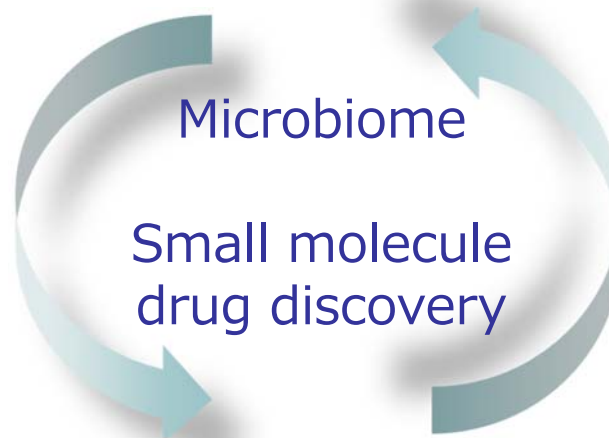
- The study demonstrates that TNIK, a protein kinase, promotes colorectal cancer stemness by regulating the Wnt signaling pathway.
- Treatment with NCB-0846, the company's novel inhibitor of TNIK, effectively suppressed cancer relapse by killing cancer stem cells.





## <EpiBiome>

- Pioneer in microbiome profiling



## <Carna>

- Expertise in Assay Technology and drug discovery
- Proprietary compound library

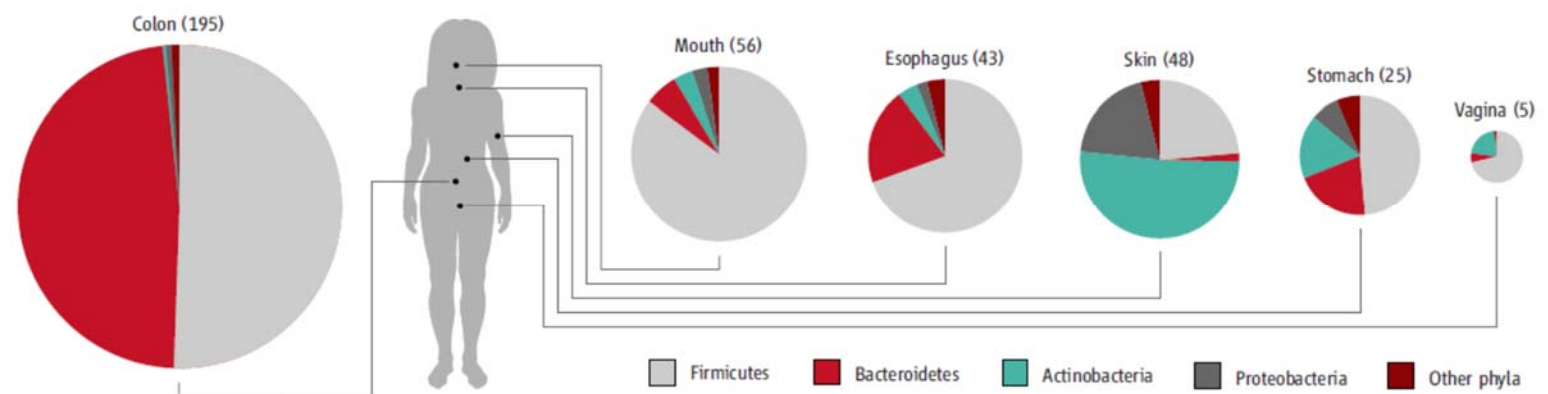
# CARNA BIOSCIENCES



# About Microbiome



Recent studies revealed that gut flora have been linked to various diseases. In 2010, a leading scientific journal, Science, selected microbiome as one of the ten scientific insights of the decade. Drug research in Microbiome field attracts significant interest from Global pharmaceutical companies, and gains big investments.



Pennisi E., *Science* **330**, 1619 (2010)

# About EpiBiome



EpiBiome is a venture-backed precision microbiome engineering company started from Stanford University that has reliably accurate microbiome profiling technology, and has won various awards for its technology

<https://www.epibiome.com/>

## Management team



Nick Conley, PhD  
Board of Directors  
Co-founder & Chief Executive Officer



Christina Tsai, PhD  
Chief Scientific Officer  
Co-founder & VP of Asian Business Development



Aeron Tynes Hammack, PhD  
Board of Directors  
Co-founder & Chief Operating Officer



Lucia Mokres, DVM  
Chief Medical Officer



Bruno Marchon, PhD  
Chief Technical Officer



The EpiPhany® Bacterial Profiling Service

EpiBiome has won various awards for its technology



# FY2016 Consolidated Financial Results



- ✓ Net Sales decreased 48.3% YoY (decreased 757 million yen YoY)
- ✓ Operating Loss of 423 million yen due to a decrease in sales and increases in R&D expenses and other SG&A expenses (deterioration of 896 million yen YoY)
- ✓ Net Loss of 289 million yen due to deterioration in operating income and recording extraordinary income from sales of investment securities (deterioration of 746 million yen YoY) (Millions of yen)

	Net Sales	Operating Income (Loss)	Ordinary Income (Loss)	Net Profit (Loss)
FY2016 (Jan-Dec 2016) (a)	811	(423)	(440)	(289)
FY2015 (Jan.-Sep 2015) (b)	1,569	472	492	456
YoY change (c)=(a)-(b)	-757	-896	-932	-746
YoY change % (d)=(c)/(b)	-48.3%	—	—	—
Revised FY2016 plan (d)	804	(432)	(449)	(299)
vs. revised FY2016 plan (a)-(d)	+7	+8	+9	+9
vs. revised FY2016 plan (a)/(d)	100.9%	—	—	—

Note 1: Rounded down to the nearest million yen.

Note 2: YoY change % and comparison to FY2016 plan for Operating Income(Loss), Ordinary Income(Loss), and Net Profit(Loss) are not presented since losses were recorded in FY2016.

Note 3: Revised FY2016 plan was disclosed on December 16, 2016.

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# FY2016 Results by Business Segment



(Millions of yen)

	Net Sales			Operating Income (Loss)		
	Drug Discovery Support	Drug Discovery & Development	Total	Drug Discovery Support	Drug Discovery & Development	Total
FY2016 (a)	712	98	811	192	(616)	(423)
FY2015(b)	954	614	1,569	412	60	472
YoY change (c)=(a)-(b)	-241	-515	-757	-220	-676	-896
YoY change (%) (d)=(c)/(b)	-25.3%	-83.9%	-48.3%	-53.5%	—	—
Revised FY2016 plan (d)	705	98	804	184	(616)	(432)
vs. revised FY2016 plan (a)-(d)	+7	—	+7	+8	+0	+8
vs. revised FY2016 plan (a)/(d)	101.1%	100.0%	100.9%	104.4%	—	—
FY2016 initial plan (e)	858			320		
vs. initial plan(a)-(e)	-145			-127		
vs. initial plan (a)/(e)	83.0%			60.0%		

Note 1: Rounded down to the nearest million yen

Note 2: Initial plan for the Drug Discovery Support business was disclosed on Feb 12, 2016. The plan for consolidated results and the Drug Discovery and Development business were not disclosed on Feb 12, 2016.

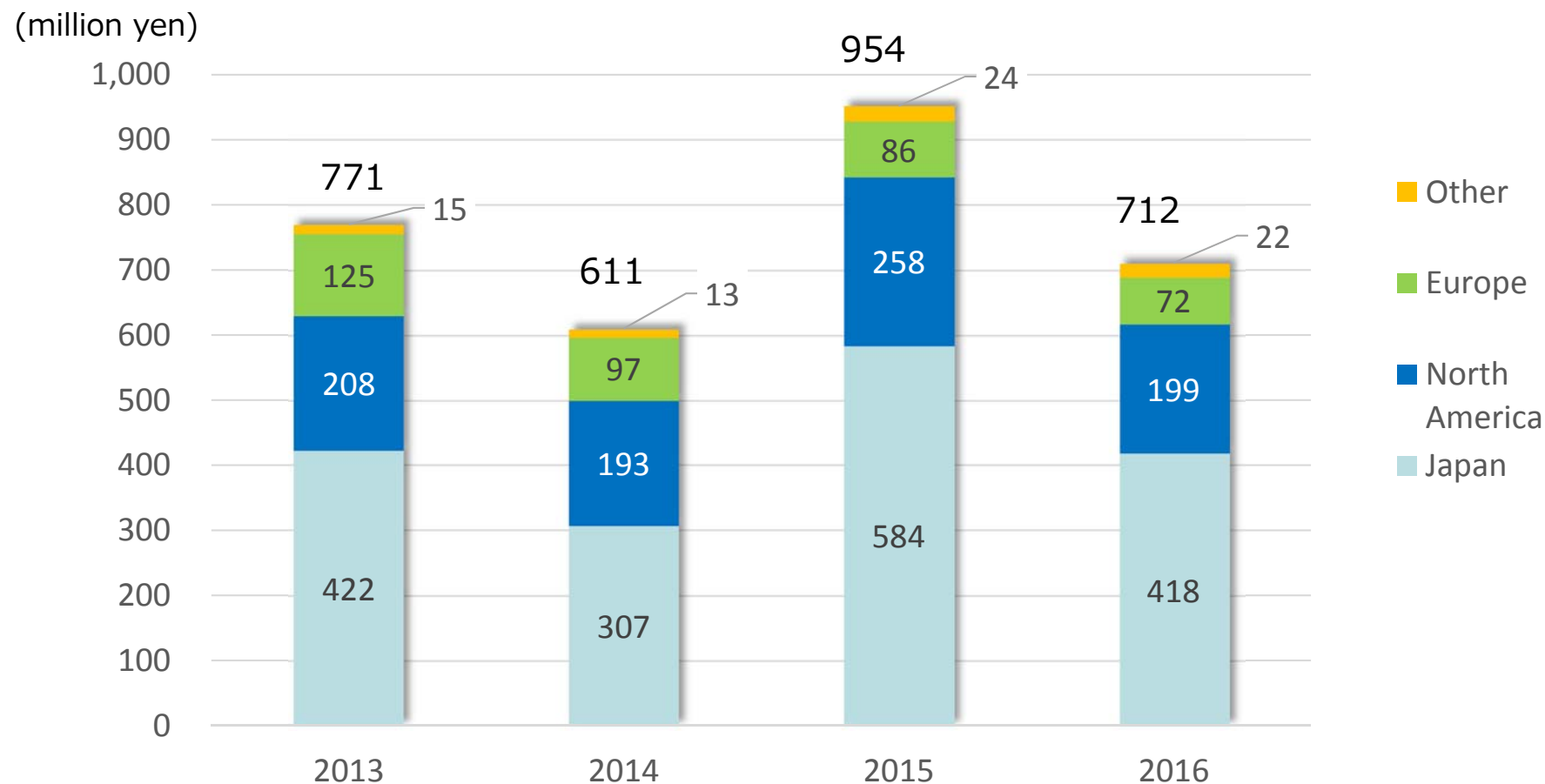
Note 3: Revised FY2016 plan was disclosed on December 16, 2016.

Note 4: YoY change % and comparison to revised FY2016 plan for Operating Income(Loss) of consolidated results and drug discovery business are not presented since losses were recorded in FY2016.

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## Drug Discovery Support business: Consolidated sales by region



Note: Sales to Ono Pharmaceutical  
 FY2015 ... 317 million yen  
 FY2016 ... 194 million yen

# Consolidated Balance Sheet



(millions of yen)

	As of Dec 31, 2016	As of Dec 31, 2015	Change	Reason for changes
Current assets	2,492	1,995	+ 496	
Cash and deposits	2,161	1,624	+ 536	Ordinary deposit + 561
Other	331	370	-39	Accounts receivable-trade -68, Income tax payable +16
Non-current Assets	73	341	-268	Sale of shares of Crystal Genomics -274
Total assets	2,566	2,337	+ 228	
Current liabilities	271	235	+ 35	Account payable-other -11, Current portion of long-term loans payable + 76, Current portion of bonds +28, Income taxes payable -33, Accrued consumption taxes -19
Non-current liabilities	555	231	+ 324	Long term loans payable + 207, Bonds payable + 172, Differed tax liabilities -54
Total liabilities	826	467	+359	
Total net assets	1,739	1,870	-131	Capital stock and capital surplus + 283, Retained earnings -289, Valuation difference on available-for-sale securities -114
Total liabilities and net assets	2,566	2,337	+ 228	

Shareholders' equity ratio	67.6%	79.7%
BPS	187.73 yen	208.78 yen
PBR	11.32 x	13.04 x
Share price of Carna Biosciences	2,125 yen	2,722 yen

Note: Share price of Carna Biosciences is based on the closing price of JASDAQ growth

# Basic Strategy for Mid-Term Business Plan 2017-2019

- Delivering operating income in FY2017
- Out-licensing multiple drug discovery programs
- Initiating in-house clinical studies to maximize the value of our drug discovery pipeline
- Securing stable earnings from the Drug Discovery Support business



(million yen)

	<b>FY2017</b>
<b>Sales</b>	<b>1,440</b>
Drug Discovery Support	1,000
Drug Discovery & Development	440
<b>Operating Income</b>	<b>39</b>
Drug Discovery Support	443
Drug Discovery & Development	(403)
<b>Ordinary Income</b>	<b>35</b>
<b>Profit</b>	<b>6</b>

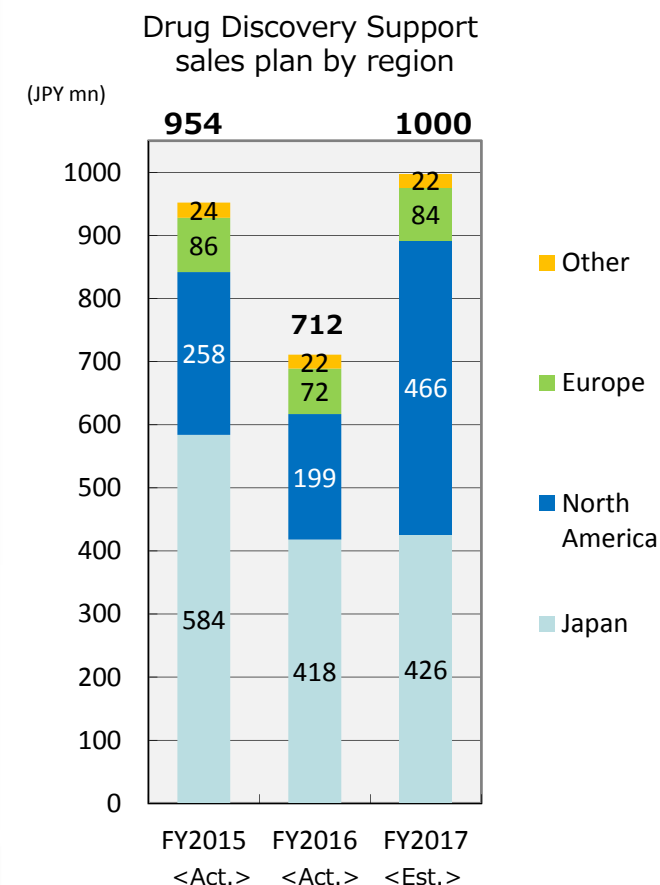
Compound	Target kinase	Indication	R&D / Business phases						
			Lead generation	Lead optimization	Candidate selection	Preclinical trials	Clinical trials	New drug application	Launch
SRA-141	CDC7	Cancer	Out-licensed to Sierra Oncology (SRA141)						
NCB-0846	Wnt-signal (TNIK)	Cancer							
NCB-0594	Wnt-signal (TNIK)	Cancer							
Small molecule	TGF $\beta$ signaling	Leukemic stem cell Immuno-Oncology							
Small molecule	Kinase	Autoimmune Diseases							
Small molecule	N/A	Malaria							
Small molecule	Kinase	Neurodegenerative disease							
Small molecule	Kinase	Anemia							

# Drug Discovery Support Business Consolidated Sales



(million yen)	2015 Act.	2016 Act.(a)	2017 Plan(b)	Change (b)-(a)
Drug Discovery Support	954	712	1000	+287
Sale of proteins	324	248	309	+60
Assay development	29	49	262	+213
Profiling/Screening	457	276	280	+3
RPPA	14	—	—	—
ProbeX	6	15	15	△0
Co-crystallography (agent business)	—	11	20	+8
ACD (agent business)	50	55	61	+6
NTRC (agent business)	58	44	42	△2
Other	13	11	8	△2

Exchanger rate(US\$):	121.11 yen	108.81 yen	110.00 yen	(Note)
% of Overseas sales:	38.7%	41.3%	57.4%	

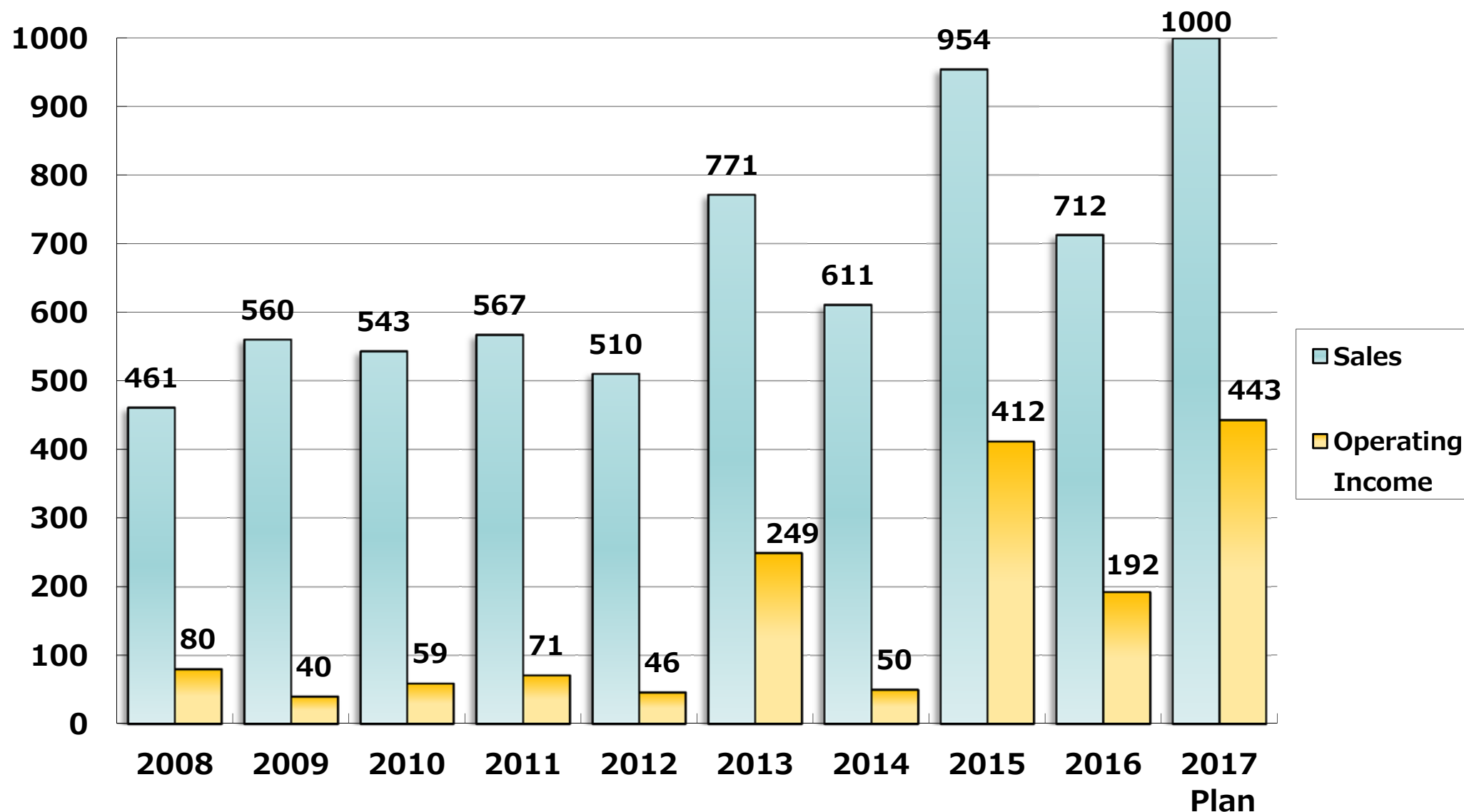


Note: Actual foreign exchange rate is average rate of the term

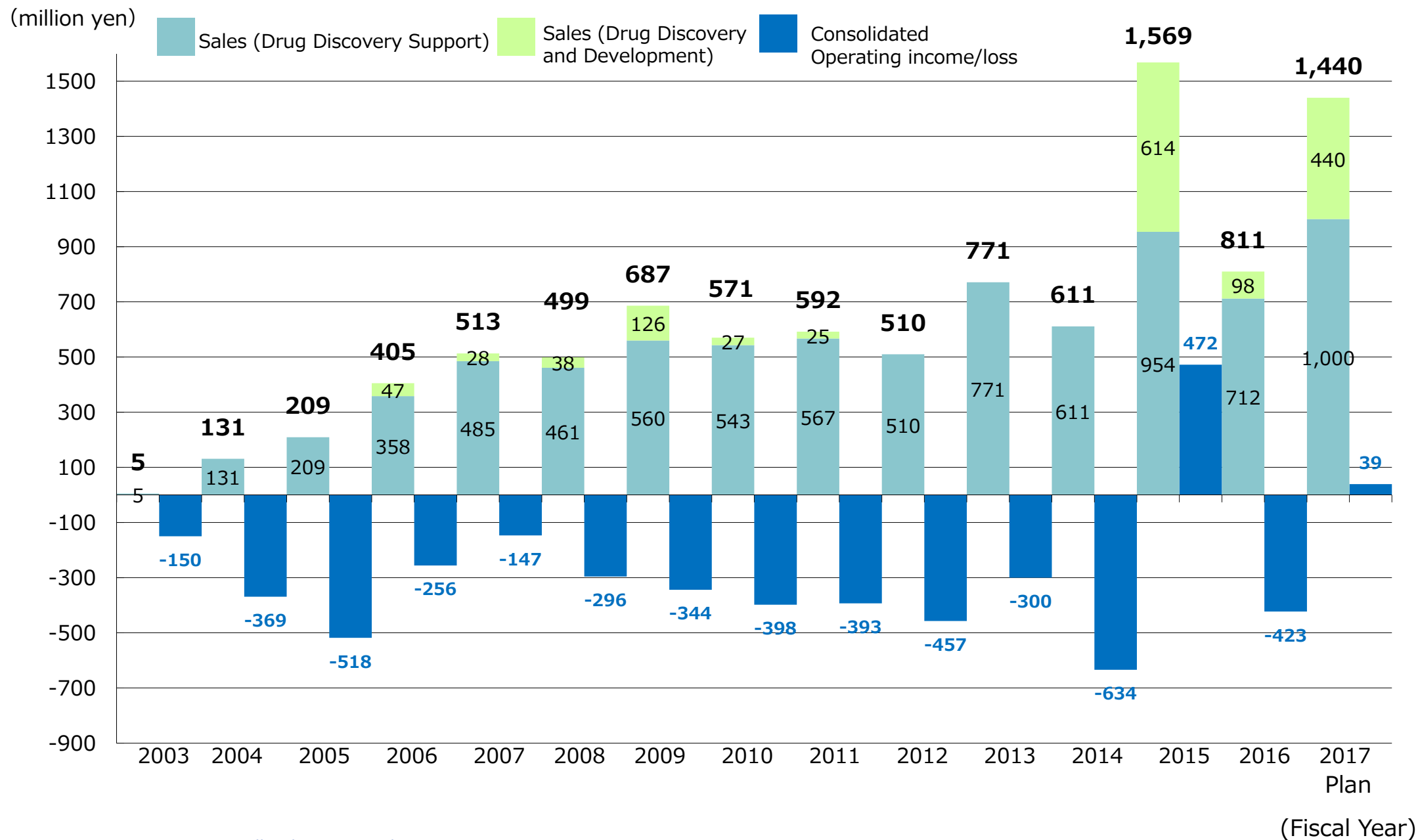
# Drug Discovery Support Business Consolidated Sales and Operating Income Plan



(million yen)



# Consolidated Sales, Operating Income, Net Income



(million yen)

	<b>FY 2017 Plan</b>	<b>FY2016 Actual</b>
R&D expenses	588	513
Capex	37	44

\*Details of FY2017 plan

R&D expenses: Preclinical studies, lead optimization studies,  
drug discovery platform technology research, and others

Capex: Equipment for R&D, Database infrastructure renewal



## Carna Biosciences, Inc.

### Corporate Planning Division

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