

Financial Results

FY2019 Q2

(January to June 2019)

Carna Biosciences, Inc.



Stock Code : 4572

<Drug Discovery>

- Establish elite team with talented professionals
- Focus on oncology and autoimmune diseases
- Well-balanced pipeline consists of first-in-class and best-in-class programs
- Building clinical development capabilities to demonstrate clinical activity of our innovative therapy

<Drug Discovery Support Business>

- Support pharmaceutical companies to accelerate their kinase inhibitor drug discovery
- Provide researchers with the new tools to drive their kinase research
- Secure funds to invest in our drug discovery programs



- **The exercise of Series 17th subscription rights to shares was completed (April)**
- **Issued restricted stocks to directors and employees to strengthen incentives to raise corporate value (May)**
- **Entered into a research and development collaboration with Gilead to develop and commercialize small molecule compounds in immuno-oncology (June)**
- **Japan Patent Office granted a patent for CDC7 inhibitor (June)**

July ~

- **Issued Series 18th subscription rights to shares (July)**

Drug Discovery and Development

Drug discovery capabilities of Carna are recognized by global pharmaceutical companies. We entered into license agreements with Johnson & Johnson, Sierra Oncology and Gilead Sciences, and a research-collaboration agreement with Sumitomo Dainippon Pharma.



Robust Preclinical Pipeline



Compound	Target	Indication	Discovery	Preclinical	Clinical	Partner
SRA141 (AS-141)	CDC7/ASK	Cancer		IND Completed		SIERRA ONCOLOGY
Small Molecule	Kinase	Immuno-Oncology				GILEAD
Small Molecule	Kinase	Psychiatry & neurology				Sumitomo Dainippon Pharma

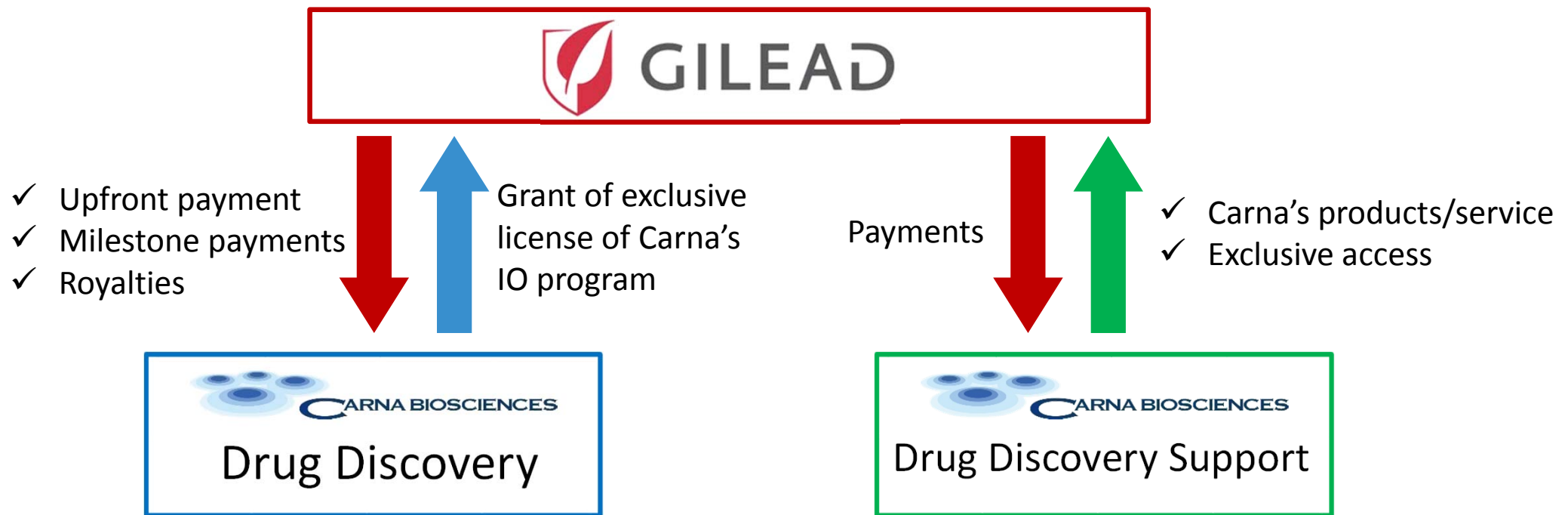
Compound	Target	Indication	Discovery	Preclinical	Clinical	Collaboration Partner
AS-0871	BTK	Autoimmune Diseases				
AS-1763	BTK	Blood Cancer Immuno-Oncology				
Small Molecule	Wnt-signal	Cancer Immuno-Oncology				National Cancer Center Japan
Small Molecule	TGFβ signaling	Blood Cancer Immuno-Oncology				HIROSHIMA UNIVERSITY
Small Molecule	Kinase	Autoimmune Diseases				
Small Molecule	N/A	Malaria				KITASATO UNIVERSITY
Small Molecule	Undisclosed	Cancer				National Cancer Center Japan

Deal with Gilead for Immuno-Oncology



Carna grants Gilead worldwide exclusive rights for the development, commercializing inhibitors against an immuno-oncology target

- Deal Size Upfront payment \$20 million
 \$450 million in potential milestone payments upon achievement of certain development and commercial milestones
- Royalties Royalties on future net sales

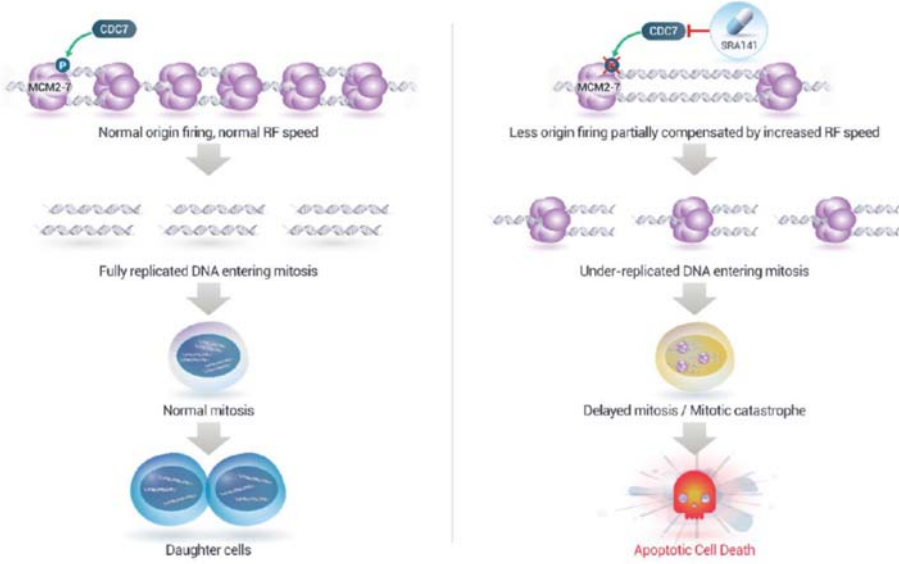


* Carna also provides Gilead an exclusive access to Carna's proprietary lipid kinase drug discovery platform for value to support the development at Gilead.

SRA141 : CDC7 Inhibitor Targeting Cancer (Out-licensed to Sierra Oncology)

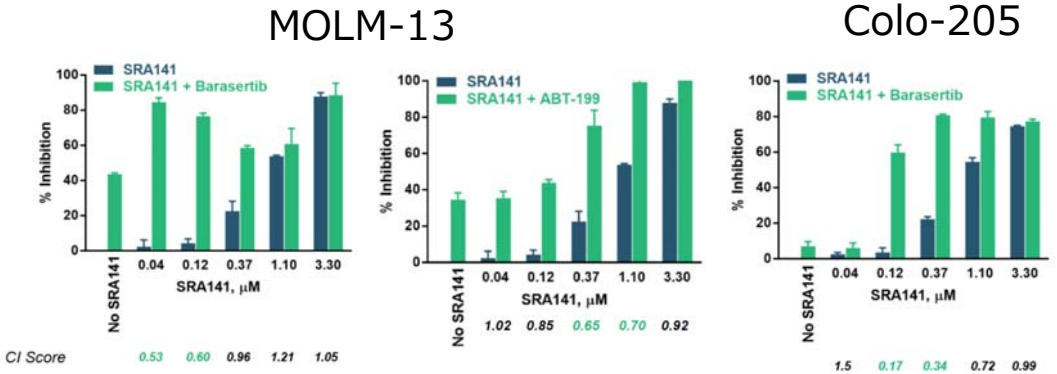


- ✓ Sierra has successfully completed the IND filing process with FDA, and plans to conduct a Phase 1/2 study in patients with colorectal cancer. Carna will receive the first milestone payment (\$4.0M) upon the initiation of Phase 1 study. (Milestone payment from sierra is not included in Carna's FY2019 earnings plan.)
- ✓ Sierra announced that it is conducting a campaign intended to seek non-dilutive strategic options to support further advancement of SRA141.



CDC7 Kinase Inhibition by SRA141 Induces a Potentially Novel Caspase-Dependent Tumor Cell Apoptosis Associated with Altered DNA Replication and Cell Cycle Dynamics

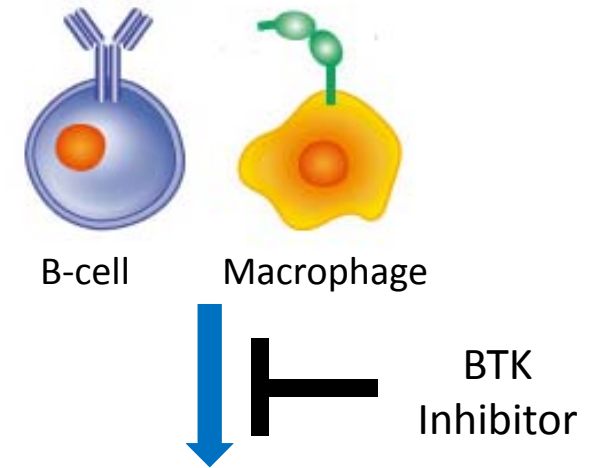
Veena Jagannathan¹, Snezana Milutinovic², Ryan J. Hansen², Bryan Strouse², Christian Hassig², Eric Brown¹
¹University of Pennsylvania, Cancer Biology, Philadelphia, PA, ²Sierra Oncology, Vancouver, BC, Canada



Source: Sierra Oncology

Bruton's Tyrosine Kinase (BTK)

- ✓ BTK is one of the crucial kinases for the B-cell maturation and macrophage activation
- ✓ BTK has been recognized as a validated therapeutic target since the success of Ibrutinib, the first FDA approved BTK inhibitor
- ✓ The expected peak sales of Ibrutinib is > \$9bn*



◆ Sales of BTK inhibitors in market

Year	Product	Company	Target	2018	2024 Est.
2013	Iburutinib	AbbVie/J&J	Blood cancer	\$4.4B	\$9.5B* ₁
2017	Acalabrutinib	Astra Zeneca	Blood cancer	\$62M* ₂	

<p>Blood Cancer</p> <p>e.g. B-cell malignancies</p>
<p>Autoimmune diseases</p> <p>e.g. Rheumatoid arthritis, asthma, systemic lupus erythematosus</p>

Non-covalent BTK Inhibitors Undergoing Development by Competitors



◆ Under development targeting autoimmune diseases

Compound	Company	Development Phase
BMS-986142	BMS	P2
Fenebrutinib (GDC-0853)	Roche / Genentech	P2

◆ Under development targeting cancer

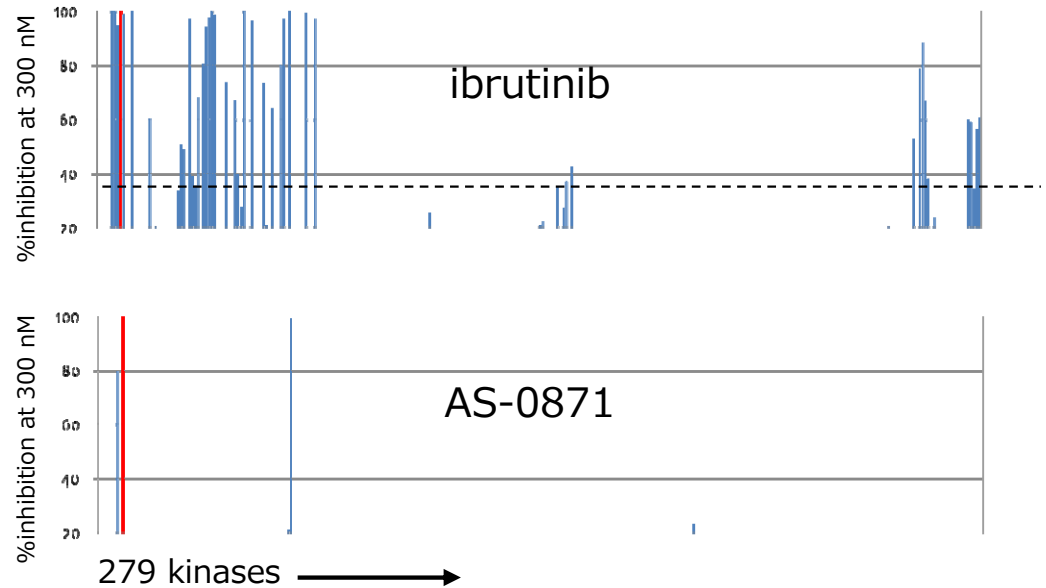
Compound	Company	Development Phase
vecabrutinib (SNS-062)	Sunesis	P1b/2
ARQ531	ArQule	P1

AS-0871 : Development undergoing targeting autoimmune diseases

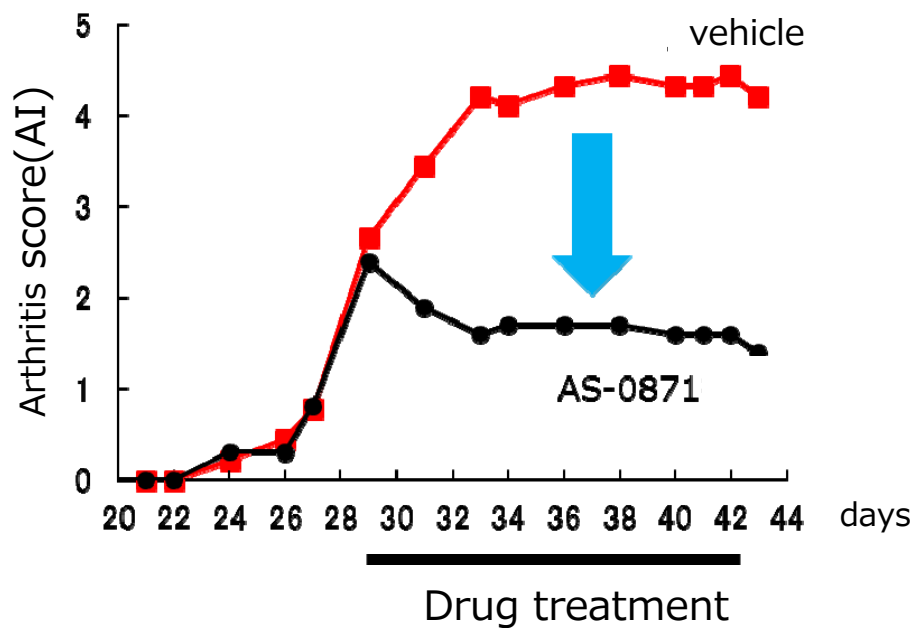
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|--|---|
| <ul style="list-style-type: none">● Small molecule BTK inhibitor● Non-covalent/reversible● High kinase selectivity | <ul style="list-style-type: none">● Demonstrated significant efficacies in arthritis models● Showed efficacy in systemic lupus erythematosus model● Preclinical development undergoing with CTA submission targeted in 2019 |
|--|---|

- ✓ GMP bulk production has been completed.
- ✓ Most of the GLP tox studies and safety studies have been completed.
- ✓ GMP bulk material production for Phase I clinical study is taking longer than expected for additional evaluation.
- ✓ Preclinical development undergoing with CTA submission targeted in 2019.

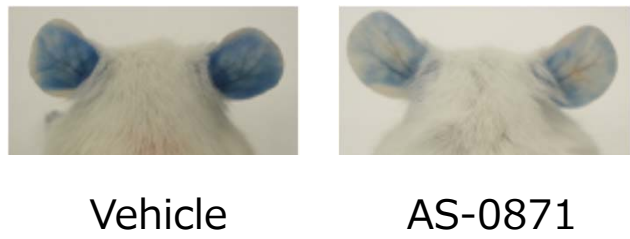
◆ High kinase selectivity



Therapeutic efficacy in Collagen-induced arthritis (CIA) mice



◆ AS-0871 inhibits an allergic reaction

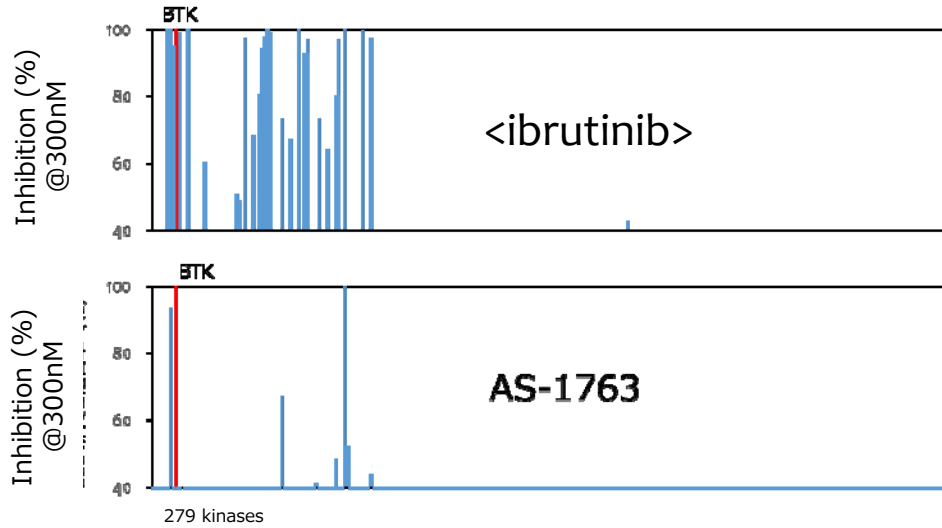


AS-1763 : Development undergoing targeting blood cancer

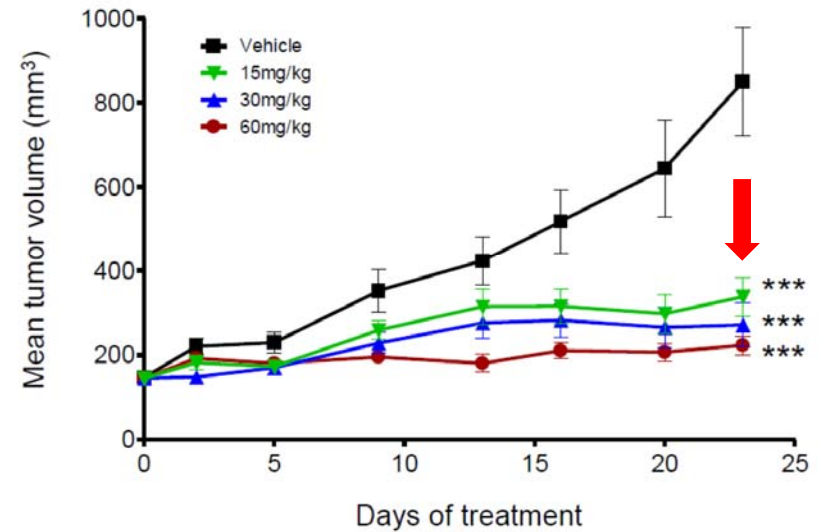
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|---|--|
| <ul style="list-style-type: none">● Non-covalent/reversible● High kinase selectivity● Inhibits both BTK wild type and ibrutinib resistant BTK C481S mutants | <ul style="list-style-type: none">● Displayed strong anti-tumor effects in lymphoma model● Preclinical development undergoing with IND submission targeted in 2020● Displayed efficacy in immuno-oncology model● Potential applications for autoimmune diseases |
|---|--|

- ✓ GMP bulk production has been completed.
- ✓ IND submission target has been changed to 2020 in order to focus on the CTA submission of AS-0871.
- ✓ Examining new formulation method to improve pharmacokinetics.

◆ High kinase selectivity

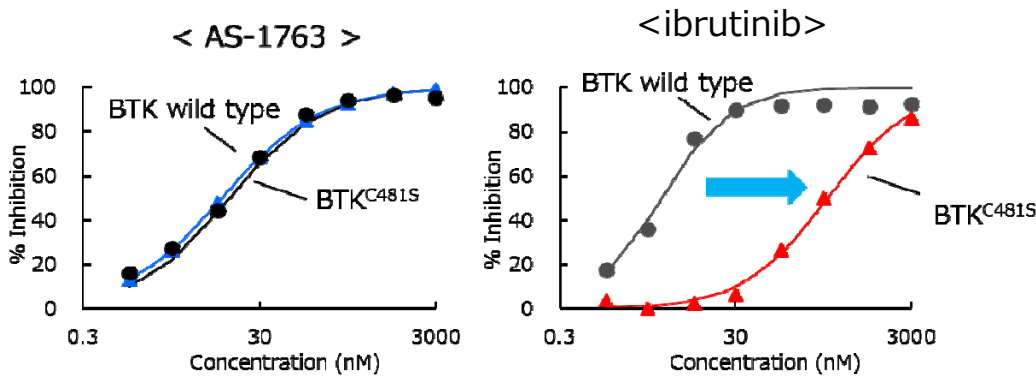


◆ AS-1763 significantly inhibits tumor growth in a B-cell lymphoma mouse model



*** P<0.0001

◆ AS-1763 inhibits both WT and C481S mutant BTK enzymes



Drug Discovery Support

- ✓ In Japan, we are continuing active marketing efforts to identify customer needs to boost sales.
- ✓ In North America, in additions to the continuous orders from big pharmas, sales from new biotech companies are expanding. We continue seeking new customers, aiming to expand market share further.
- ✓ In China, sales are continuously expanding. We are working closely with the agent in China for aggressive promotion.
- ✓ Nano BRET, a new cell-based assay service launched in the end of 2018, made a good start.

FY2019 Q2 Results

(JPY mn)	FY2018 Q2 Actual	FY2019 Q2 Actual	YoY Change	FY2019 Plan	
Sales	399	2,460	+2,061 +516.6%	3,038	Upfront payment of JPY2,128 mn from Gilead.
Operating Profit/Loss	(436)	1,451	+1,888	313	Gross profits increased due to upfront payment.
Ordinary Profit/Loss	(443)	1,446	+1,889	279	
Net Profit/Loss	(489)	1,195	+1,685	214	
R&D Cost	468	504	+35 +7.7%	1,808	Investment in preclinical studies.

Note 1: Rounded down to the nearest million yen.

Note 2: YoY change % for Operating Profit, Ordinary Profit, and Net Profit are not presented since losses were recorded in the previous period.

Note 3: FY2019 plan was revised on June 25, 2019.

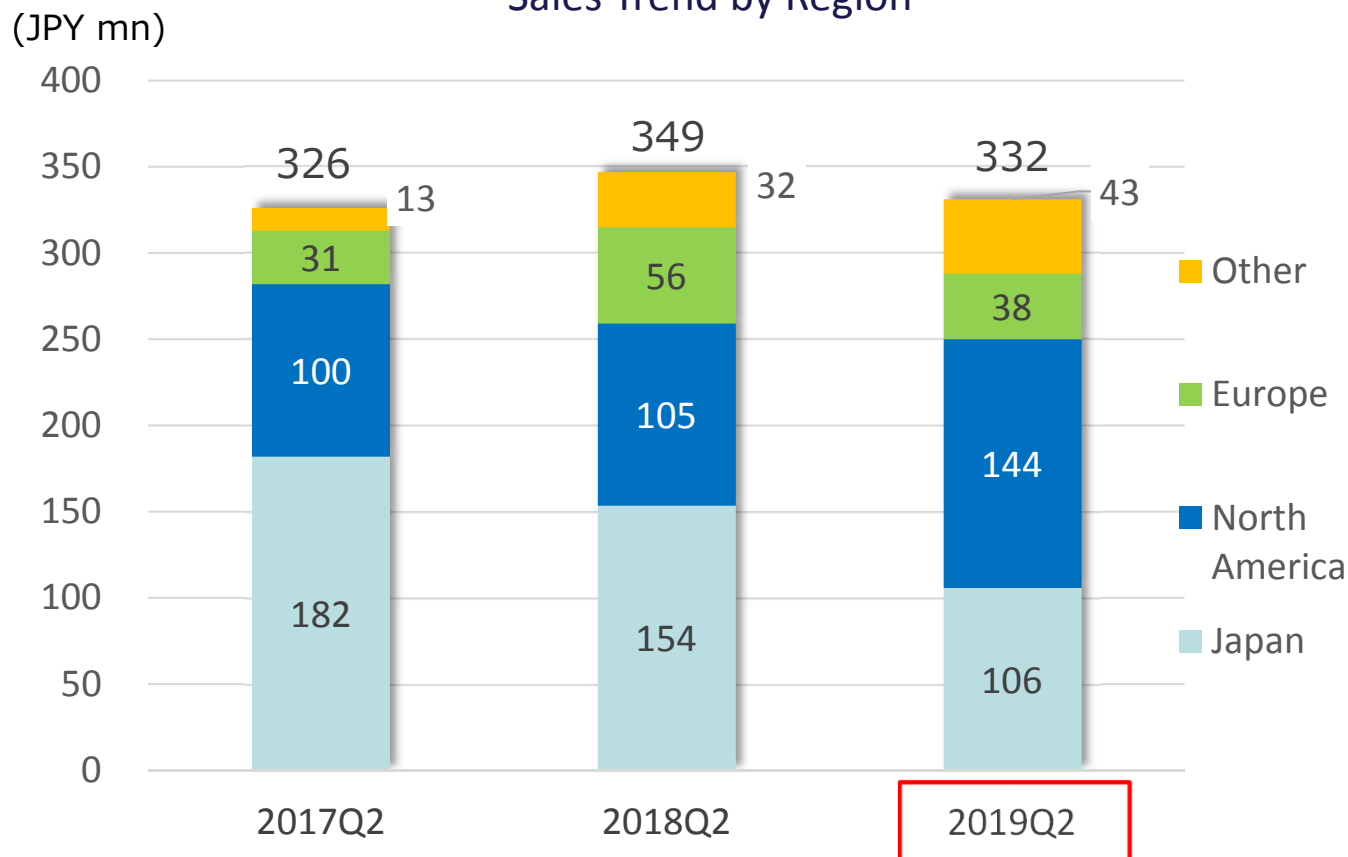
(JPY mn)	FY2018 Q2 Actual	FY2019 Q2 Actual	YoY Change	FY2019 Plan	
Total Sales	399	2,460	+2,061 +516.6%	3,038	
Drug Discovery Support	349	332	-16 -4.7%	938	Sales in Japan and EU were weak while sales in the U.S. and other regions were strong.
Drug Discovery & Development	50	2,128	+2,078 42x	2,100	Upfront payment of JPY2,128 mn from Gilead.
Total Operating Profit/Loss	(436)	1,451	+1,888	313	
Drug Discovery Support	78	15	-62 -80.0%	247	R&D cost increased to develop new products and services.
Drug Discovery & Development	(515)	1,435	+1,951	65	Investment in preclinical studies.

Note 1: Rounded down to the nearest million yen.

Note 2: YoY change % for Operating Profit is not presented since loss was recorded in the previous period.

Note 3: FY2019 plan was revised on June 25, 2019.

Drug Discovery Support Business
Sales Trend by Region



- **Japan: Decreased 30.9% YoY**
Q2 sales were not strong enough to cover weak fiscal year-end demand in March.
- **North America: Increased 36.7% YoY**
Profiling service and kinase proteins were strong. Reached record-high sales as H1.
- **Europe: Decreased 32.5% YoY**
Sales of kinase proteins were weak while profiling service was robust.
- **Other: Increased 34.4% YoY**
Sales in China were strong.

Consolidated Balance Sheet



(JPY mn)

	As of Dec. 31, 2018	As of Jun. 30, 2019	Change	Reason for changes
Current assets	1,671	3,785	+2,114	Accounts receivable-trade +2,152
Cash and deposits	1,355	1,324	-30	
Non-current Assets	98	115	+16	
Total assets	1,770	3,901	+2,130	
Current liabilities	400	709	+308	Income taxes payable +240
Non-current liabilities	482	392	-90	Long term loans payable -85 Bonds payable -14
Total liabilities	882	1,101	+218	
Total net assets	887	2,799	+1,912	Capital stock and capital surplus +721、 Retained earnings +1,195
Total liabilities and net assets	1,770	3,901	+2,130	
Shareholders' equity ratio	49.7%	71.7%		* Upfront payment from Gilead was recognized as sales in Q2 and was received in July.
BPS	86.8 yen	258.0 yen		
PBR	10.37 x	9.54 x		
Share price of Carna Biosciences	900 yen	2,462 yen		

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

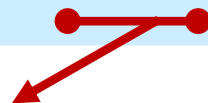
Drug Discovery: Vision 2030



Started drug discovery	Demonstrated strong capabilities in drug discovery	Maximize the value of pipelines	Continue delivering profits
2010~2015	2016~2020	2021~2025	2026~2030
<ul style="list-style-type: none"> Established in-house research capability Established pipeline 	<ul style="list-style-type: none"> Out-licensed multiple programs Initiate clinical trials 	<ul style="list-style-type: none"> POC in human Strengthen cash position by milestone revenue 	<ul style="list-style-type: none"> Drive sustainable revenue growth by milestones and royalties from multiple products



Leading Drug Discovery company that continuously deliver innovative drugs



<2019 & 2020 R&D Plan>

- AS-0871
 - ✓ CTA submission (2H2019)
 - ✓ FIH (2H2019~1H2020)
- AS-1763
 - ✓ IND submission (2020)
 - ✓ FIH (2020)
- Bring one or more programs to preclinical stage (2020)

<Revenue>

- Milestone payments and royalties from SRA141(AS-141), Sumitomo Dainippon Pharma, and Gilead
- Revenue from potential new licenses

CTA: Clinical Trial Application
 IND: Investigational New Drug
 FIH: First in Human
 POC: Proof of Concept

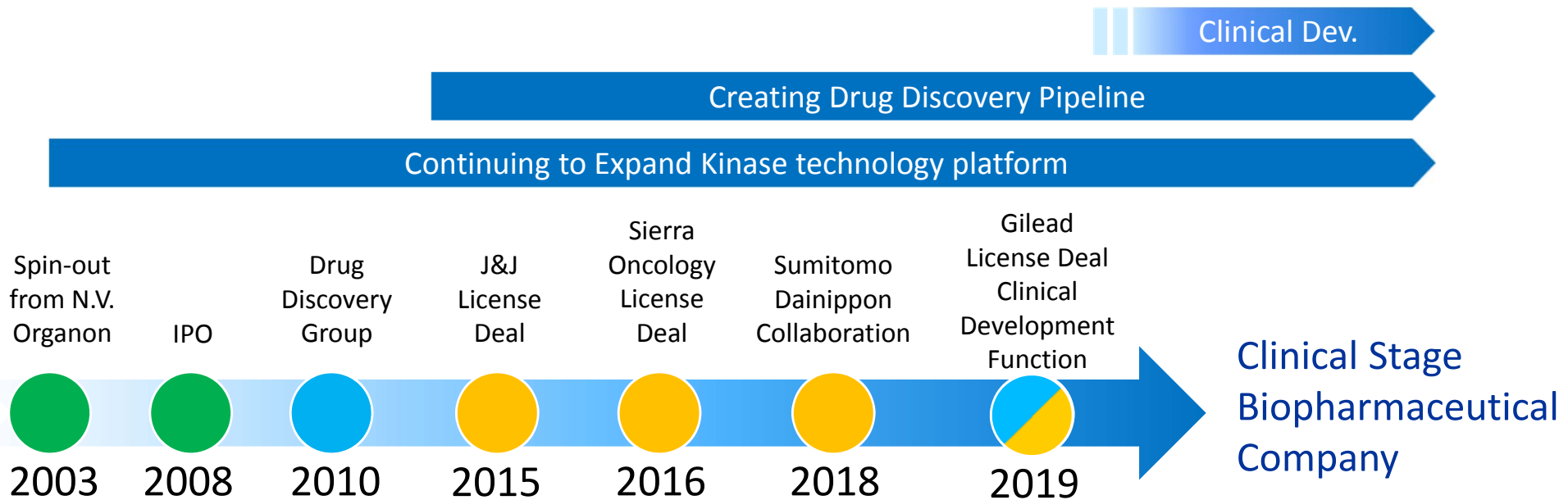
■ Financing strategy to secure funds to invest in R&D

- ✓ Maximize the revenue from the drug discovery and drug discovery support business.
- ✓ Issued Series 18th Subscription Rights to Shares in July.

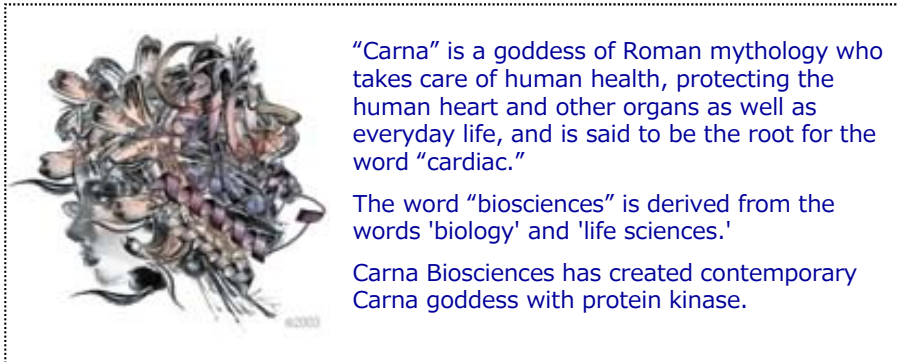
■ Funds raised from warrants will be invested in the followings

- ✓ Advance developments of two BTK inhibitors, AS-0871 and AS-1763.
- ✓ Prime next wave of development programs
- ✓ Expand research pipeline

Continuously Discovering and Delivering Innovative Therapies for Patients by leveraging Carna's powerful kinase technology platform



- ◆ Continuing to Expand Preclinical/Clinical Pipeline
- ◆ Established global clinical development capabilities to initiate clinical studies of two BTK inhibitor programs



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