COMPANY RESEARCH AND ANALYSIS REPORT

RaQualia Pharma Inc.

4579

TSE JASDAQ Growth

29-Jun.-2018

FISCO Ltd. Analyst
Hiroyuki Asakawa

FISCO Ltd.
http://www.fisco.co.jp

RaQualia Pharma Inc.
4579 TSE JASDAQ Growth

29-Jun.-2018
http://www.raqualia.com/investorinfo/index.html

Index

Summary

Steady growth in veterinary drug sales and progress in human drug development increase likelihood of operating profit moving into the black in FY12/19

RaQualia Pharma Inc. <4579> (hereafter, also "the Company") is a drug discovery and development-type biotech venture company that was established when the central research laboratory of Pfizer's Japanese subsidiary became independent of Pfizer. Its business model is to generate earnings by creating the development compounds that become the seeds for new drugs and licensing-out the resulting technologies and patents to pharmaceutical companies. The Company specializes in the gastrointestinal and pain therapeutic areas and its strengths include its superiority in ion channel drug discovery that has a high barrier to entry.

1. Royalties from veterinary drugs sales provide major boost to revenues and earnings in FY12/17

After raising its FY12/17 estimates several times, the Company ultimately reported consolidated business revenue (net sales) of ¥1,419mn (a ¥714mn increase over non-consolidated sales in FY12/16) and an operating loss of ¥150mn (a ¥609mn improvement over FY12/16). The large top-line gains were driven by royalty income from sales of veterinary drugs. The sharp decline in operating losses stemmed from delays in the completion of clinical trials conducted in the UK, which was pushed out into the beginning of FY12/18, leaving total business expenses in FY12/17 well below plan and greatly reducing the operating loss reported for the fiscal year.

2. Operating losses expected to increase as expenses from FY12/17 slip into FY12/18, but underlying profitability continues to improve

For FY12/18, the Company is forecasting net sales of ¥1,388mn (-¥31mn year on year (YoY)) and an operating loss of ¥698mn (-¥548mn YoY). On the surface operating losses appear to be increasing, but this is entirely due to the delay in booking ¥332mn in clinical trial expenses mentioned above. If these expenses were taken out and put back into FY12/17, one could readily see that underlying profitability of the Company is steadily improving. Moreover, because the Company's sales forecast is based on revenues streams that have a high degree of certainty, we at FISCO believe there is a good chance RaQualia will raise its FY12/18 forecast during the course of the fiscal year.

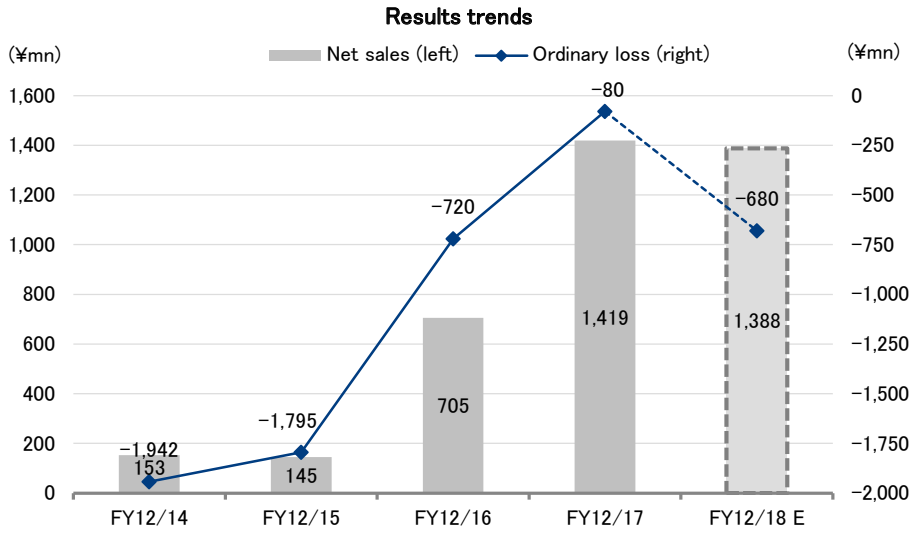
3. With royalties coming in from veterinary drugs and human drugs, operating profit moving into the black in FY12/19

RaQualia is working on a number of drug development programs, both in-house and together with licensee companies, none of which has been dropped (cancelled). And from among these drug development programs, it looks like a drug for treating human diseases will at long last be ready to hit the market during FY12/18. More specifically, a Potassium-Competitive Acid Blocker (P-CAB) licensed to CJ Healthcare Corporation of South Korea is expected to gain regulatory approval and the sales begin sometime during the latter half of 2018. Following that, RaQualia expects royalties from sales of ziprasidone in FY12/20. Combined with the royalties from two veterinary drugs that are now on the market, these will give the Company a more stable and substantially larger revenue stream and, we believe will significantly increase its chance of moving into the black at the operating profit level in FY12/19 and staying in surplus in subsequent years.

Summary

Key Points

- RaQualia booked first royalties from veterinary drugs as the products hit market in FY12/17, and expects a drug for humans to reach market in FY12/18
- The Company released a new three-year business plan for 2018–2020, and reaffirmed prospect to move into the black in FY12/19



* Results for FY12/16 and previous years are for parent company only
Source: Prepared by FISCO from the Company's financial results

Company profile

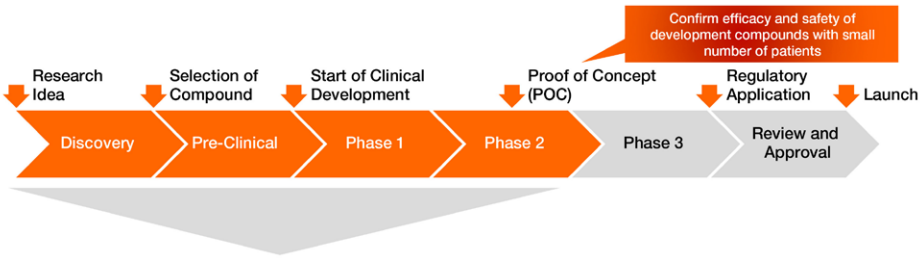
Drug discovery and development biotech venture company spun off from drug research and development lab of Pfizer Japan

1. Business area and strategy

A drug discovery and development biotech venture company RaQualia Pharma was established when the central research laboratory of Pfizer's Japanese subsidiary was spun off and became an independent entity. As a research and development-based biotech venture company, RaQualia has a business model that differs from those of the average pharmaceutical companies.

Drug research and development goes through three major stages; exploratory research to find candidate compounds, pre-clinical development to confirm its safety and efficacy in animal testing, and clinical development to assess its safety and efficacy in humans. After an application for its regulatory approval as a new drug, the regulatory authorities approve it to be launched on the market. In addition, the clinical development is divided into three phases; phase I, II, and III. Within this process, RaQualia recognizes that drug discovery covers from exploratory research to Proof of Concept (POC), and make this its business domain.

Scope of business



Source: Prepared by FISCO from the Company's results briefing materials

RaQualia's business model is based on generating earnings by creating development compounds that become the seeds for new drugs and out-licensing the resulting technologies and patents to pharmaceutical companies. In addition to initial payments at the out-licensing, RaQualia also receives payments from licensees when certain milestones are reached in terms of development, regulatory approval and sales, as well royalty payments based on a fixed percent of drug sales once the drug is launched on the market.

With this business model, the revenue of the Company depends largely on revenues earned after compounds are licensed out. In other words, although the scope of RaQualia's business extends to Phase II trials, it is only after a compound is licensed to a pharmaceutical company when the research and development work the Company has done is effectively monetized. The compounds that RaQualia licenses out as drug candidates are then subject to further clinical development by the licensees and finally brought to market as new drugs. Up to this final point, RaQualia works with the licensees to provide ongoing development support for the drug candidates. So while RaQualia defines its business domain as the "creation" of compounds that will become drug candidates, another important part of its business is to provide support to the licensees.

Strong in ion channel drug discovery technology and drug discovery infrastructure; makes first license agreement for ion channel drug

2. Advantages and strengths

The Company has two main strengths. The first is its technologies for ion channels drug discovery. While ion channels drug discovery is very difficult and the barriers to entry are high, the next generation drug discovery technologies are expected to create new values from drug efficacy and market potential perspectives. Its second strength is that it has a complete infrastructure for drug discovery with a library of about 380,000 compounds, screening robots, and expertise in analysis.

Ion channels drug discovery signifies a new generation of drugs. Ion channels are a group of cell membrane proteins that allow ions to pass through the cell membranes. Ion channels are quite selectively, that is, each ion channel only allows a certain type of ion to pass through; examples include potassium channels and sodium channels. Utilizing this characteristic of selectivity makes possible development of new drugs that use a different approach from those of current therapies, such as drugs that act strongly on a specific location or disease. In terms of the target therapeutic areas for these drugs, effective new drugs are expected for pain, cardiovascular, and gastrointestinal diseases. But on the other hand, there remain a number of issues to be resolved, such as a question of how to separate the side effects and many challenges in terms of the drug discovery process itself. For these reasons, it is not easy to enter this field.

The Company's second strength is its drug discovery infrastructure, which includes a highly knowledgeable and technically skilled team of researchers, a huge library of compounds, screening robots with self-developed measuring equipment to increase efficiency, and expertise in compound refining and analysis. Using this drug discovery infrastructure, RaQualia carries out research and development work in its own areas of specialization (gastrointestinal disorders and pain) and also does joint research with research labs affiliated with universities, other public institutions, and also with pharmaceutical companies. While there are many challenges when it comes to ion channel drug discovery, we believe it is fair to say that it is RaQualia's comprehensive drug discovery infrastructure that leads its ion channel drug discovery technology to success. Recognizing these strengths, various pharmaceutical companies have joined with RaQualia to pursue joint research in the field of ion channel drug discovery.

RaQualia has been working in the area of ion channel drug discovery since its founding in 2008 and a really big step forward came just last year. The Company licensed its selective sodium channel blocker to Maruho Co., Ltd. (announced on December 25, 2017), and received an initial payment in conjunction with the contract signing. Prior to this RaQualia has been active in joint research projects with a number of pharmaceutical companies but had only been paid in the form of collaborative research funding. The license agreement with Maruho represents a major step forward, as this is the first time RaQualia has licensed one of its ion channel drug discoveries. Maruho will push ahead with development of a drug based on RaQualia's selective sodium channel blocker with the aim of creating a product for worldwide sale. For its part, RaQualia can expect to receive milestone payments linked to progress in the development process and royalty payments on sales after the drug is brought to market.

Establishes first center for academic-industrial research collaboration at Nagoya University; continues collaborative work with academic researchers

3. Collaboration with academia

For the Company, which is a drug discovery venture, a key to its continued existence is how to secure drug discovery seeds (drug-candidate compounds). For this point, the Company's strategy is to advance collaborations with academia (universities), and it is particularly focusing on its collaboration with Nagoya University where the Company utilizes this university's geographical proximity.

On February 20, 2018, RaQualia announced the founding of the RaQualia Pharma Industry-Academia Collaborative Research Center at Nagoya University, the first such center at Nagoya University. This represents increasingly close ties between RaQualia and Nagoya University that began with the establishment of a Division of Analytical Study on Efficacy Pharmacology within Nagoya University's Research Institute for Environmental Medicine in April 2014, which was followed by an agreement in February 2015 to establish academic-industrial research collaboration laboratories, "Laboratory of Medical Chemistry" and "Laboratory of Pharmaceutical Sciences & Analytical Chemistry" and also the decision by the Company in August 2015 to relocate its discovery chemistry department to Nagoya University's Higashiyama Campus, as well as efforts by the biotech industry in general to foster closer ties with academic research institutions in Central Japan. The establishment of the RaQualia Pharma Industry-Academia Collaborative Research Center will make three separate former departments to form two new departments: Analytical Study on Efficacy Pharmacology and Pharmaceutical Sciences. In the future, Nagoya University is looking at collaborating with Division of Clinical Medicine, Nagoya University Graduate School of Medicine, to conduct clinical researches, and is also hoping that, in the course of its collaborative research, RaQualia with Nagoya University will create good candidates for further drug development. Joint research efforts thus far have made progress on research related to the development of a drug for the treatment of non-alcoholic steatohepatitis (NASH).

As before, we at FISCO believe that RaQualia will benefit from these collaborative research efforts with academia. With the establishment of the RaQualia Pharma Industry-Academia Collaborative Research Center for Joint Academic-Industrial Research on Drug Development at Nagoya University, we expect to see ties between the Company and the University grow even closer, allowing RaQualia to make use of many targets for drug development identified by the University researchers as well as the University's advanced basic research capabilities. Because this should also open up opportunities for RaQualia personnel to participate in industrial research seminars and joint presentation meetings sponsored by the University, and also make use of students in the University's internship program, the collaboration between RaQualia and Nagoya University can be expected to aid in the Company's hiring and training of talented young employees in the future.

Results trends

Books first royalties from veterinary drug sales; new license agreements also provide major boost to revenues and earnings

For FY12/17 the Company reported net sales of ¥1,419mn, a ¥714mn increase over non-consolidated sales in the previous year, and an operating loss of ¥150mn (+¥609mn YoY). At the ordinary profit level, losses came in at ¥80mn (+¥640mn); at the net profit level, losses attributable to owners of parent company shareholders came to ¥58mn (+¥669mn).

The Company raised its estimates a number of times during the course of the year but, excluding minor adjustments owing to its shift to consolidated accounting and changes in non-operating income/expenses and extraordinary gains/losses, it actually issued two substantive revisions to its estimates, both of which were upward revisions. Ultimately, sales and earnings finished in line with the revised estimates announced shortly before its results announcement.

Summary of FY12/17 results

(¥mn)

	FY12/15 results	FY12/16		FY12/17	
		Full year results	YoY change	Full year results	YoY change*
Business revenue	145	705	559	1,419	713
Operating expenses	2,010	1,465	-544	1,569	104
Operating profit	-1,864	-759	1,104	-150	609
Ordinary profit	-1,795	-720	1,074	-80	640
Profit	-1,854	-728	1,126	-58	669

* For comparison purposes only owing to switch to consolidated accounting in FY12/17
** FY12/17 figure represents net profit (loss) attributable to owners of parent company shareholders
Source: Prepared by FISCO from the Company's financial results

Results trends

One of the big topics in FY12/17 was the Company's receipt of its very first royalty payments, the result of license agreements covering two veterinary drugs that were brought to market in the U.S. during the course of year. This is highly significant because it substantially expands and stabilizes RaQualia's earnings structure. Another major progress was CJ Healthcare Corporation's filing with South Korean regulatory authorities for approval to begin domestic sales of a new drug for humans based on a Potassium-Competitive Acid Blocker (P-CAB) licensed from RaQualia, as this is the first drug for humans based on a compound developed by RaQualia. Near the end of the year RaQualia also reached two license agreements that were not expected when the Company put together its initial forecast. One of these was for its selective sodium channel blocker that was licensed to Maruho; this represents its first license agreement in the field of ion channel drug discovery. The other was with CJ Healthcare, expanding the licensed territory granted to the South Korean company for the P-CAB. In addition to East Asia and Southeast Asia granted under the previous agreement, CJ Healthcare will now be licensed for the P-CAB in Central and South America, Eastern Europe, and the Middle East.

Major events generating revenues and earnings in FY12/17

	Time period	Event
FY12/17	January 2017	Aratana begins sales of osteoarthritis pain management drug for dogs under brand name Galliprant® in U.S.
	July 2017	Milestone payment received after certain level of results were achieved in joint research project with Asahi Kasei Pharma
	August 2017	CJ Healthcare files for regulatory approval of Potassium-Competitive Acid Blocker (P-CAB) in South Korea
	October 2017	Aratana begins U.S. sales of Entyce®, a ghrelin receptor agonist for use in treating dogs
	December 2017	Out-licenses selective sodium channel blocker to Maruho
	December 2017	Company expands license agreement with CJ Healthcare to Rest of the World (specifically, Central and South America, Eastern Europe, and the Middle East)

Source: Prepared by FISCO from the Company's results briefing materials and press releases

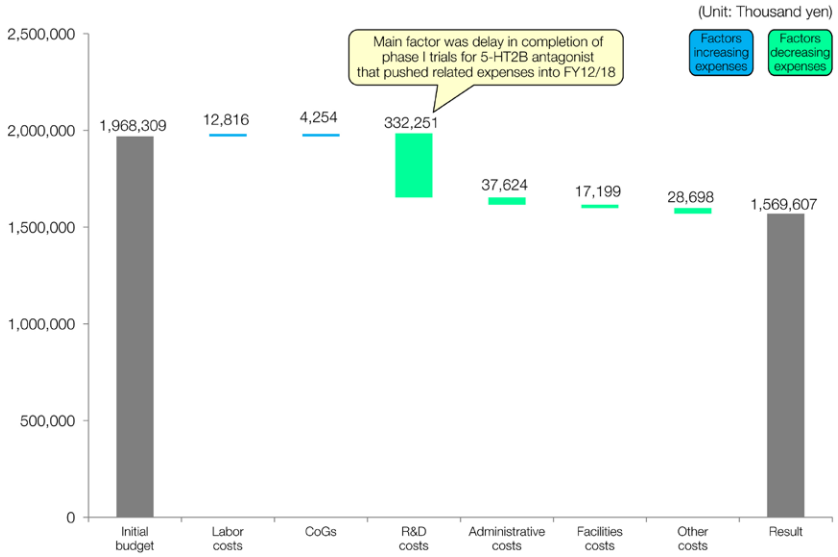
On the expense side, the increase in business expenses was limited to ¥104mn YoY, bringing total business expenses to ¥1,569mn. The Company continued phase I clinical trials for its 5-HT2B antagonist in the U.K. but phase I trials were not completed until the beginning of FY12/18. As this alone reduced research and development expenses by ¥332mn and brought overall expenses in well below budget, the operating loss reported was less than expected. If these expenses were added back, the operating loss reported for FY12/17 would have been ¥482mn.

Outside of research and development expenses, RaQualia kept a tight lid on spending, limiting increases in personnel expenses to ¥12mn and the increase in CoGs to ¥4mn, and cutting general and administrative expenses by ¥37mn, facilities-related spending by ¥17mn, and miscellaneous other expenses by ¥28mn. Excluding the amounts related to the delay in the completion of the phase I clinical trials mentioned previously, the Company through its own efforts managed to reduce spending by roughly ¥66mn versus its initial budget.

With respect to spending on research and development, the Company noted that its R&D spending basically runs around ¥300mn per annum. However, because each clinical trial incurs a total of several hundred million yen worth of expenses, R&D spending can be quite lumpy from year to year and earnings at the operating profit level can vary greatly depending on the year in which clinical trial expenses are booked. This was exactly what happened in FY12/17 and what happens in FY12/18. But rather than frown one year and smile the next owing to these year-to-year swings in earnings, we believe it is better to dispassionately normalize earnings by averaging the figures over the two years and evaluate the results accordingly.

Results trends

Factors contributing to changes in business expenses



Source: Prepared by FISCO from the Company's results briefing materials

Updated "Odyssey 2018" medium-term business plan

Company announces new three-year, medium-term plan covering 2018–2020; reaffirming prospect to move into the black in FY12/19

Every year RaQualia updates its rolling medium-term business plan that covers a period of three years. In February 2018, the Company unveiled its updated "Odyssey 2018" plan covering the three-year period from FY12/18 through FY12/20.

As a drug discovery venture company, RaQualia plans to continue working within its current business field by carrying out internal development work (including exploratory research, pre-clinical development work, and phase-I trials) on candidate compounds that can be licensed out. At the same time, in the case of out-licensed programs, RaQualia plans to continue working closely with licensee companies to develop drugs that can be brought to market and thus help it grow. (The statuses of its various programs are detailed below.)

Judging from the figures in its sales and earnings forecasts, the Company appears to expect more initial payments and royalty income than previous forecasts based on the progress of the development programs. On the earnings front, the timing of expenses will lead to greater losses in FY12/18 but the Company still expects to finish in the black in FY12/19, and in fact has raised its earnings forecast for that year. Projections show operating profit coming down in FY12/20 based on the Company's expectation that it will not receive sufficient milestone payments that year, but that could easily change depending on the progress made for various drug development programs.

Updated “Odyssey 2018” medium-term business plan

Results targets in Odyssey 2018 (FY12/18-FY12/20)

(¥mn)

	Odyssey 2018						
	FY12/17		FY12/18		FY12/19		FY12/20
	Initial plan (consolidated)	Results (consolidated)	Former targets (consolidated)	Forecast (consolidated)	Former targets (consolidated)	Targets (consolidated)	Targets (consolidated)
Business revenue	1,176	1,419	1,291	1,388	1,688	1,961	1,850
Business expenses	1,968	1,569	1,554	2,086	1,560	1,779	1,716
Operating profit	-791	-150	-263	-698	128	182	134
Ordinary profit	-799	-80	-265	-680	127	206	158
Profit	-800	-58	-271	-686	121	134	101

Source: Prepared by FISCO from the Company's mid-term business plan

Progress of out-licensed programs

The group as a whole has a total of 13 out-licensed programs Launch of new drugs used to treat humans in sight

1. Overview of out-licensed programs

The group as a whole has a total of 13 out-licensed programs. In addition to 10 for the development of drugs for treating humans and 2 for veterinary drugs at the parent company, subsidiary TMRC Co., Ltd. has 1 program for treating humans.

Progress of out-licensed programs

List of out-licensing programs

	Program	Compound code	INN	Target	Licensee	Territory	Remarks
Human drugs	Potassium-Competitive Acid Blocker (P-CAB)	RQ-00000004	tegoprazan	GERD	CJ Healthcare	South Korea, China, Taiwan, Southeast Asia, South and Central America, Eastern Europe, and Middle East	CJ Healthcare entered into a sub-license agreement with Luoxin Pharma in China. RaQualia entered into a new license agreement with CJ Healthcare in December 2017 that increases its licensed territory
	5-HT_{2A}/D_2 antagonist	RQ-00000003	Ziprasidone	Schizophrenia, bipolar disorder	Meiji Seika Pharma	Japan	Already marketed in U.S. and Europe. Meiji Seika Pharma started phase III clinical trials in March 2015
	EP4 antagonist	RQ-00000007	grapiprant	Pain, cancer, autoimmune disease	AskAt	Global	
	EP4 antagonist	RQ-00000008		Immuno-oncology, veterinary drugs	AskAt	Global	
	COX-2 inhibitor	RQ-00317076		Pain	AskAt	Global	
	5-HT_4 partial agonist	RQ-00000009		Alzheimer's disease	AskAt	Global	
	5-HT_4 partial agonist	RQ-00000010		Gastroparesis, functional dyspepsia	ZTE Biotech	China (with option to license other territories except for Japan)	Signed joint venture agreement with ZTE Biotech in January 2018
	5-HT_{2B} antagonist	RQ-00310941		IBS-D	ZTE Biotech	China (with option to license other territories except for Japan)	Signed joint venture agreement with ZTE Biotech in January 2018
	Selective sodium channel blocker	undisclosed		undisclosed	Maruho	Global	
	P2X7 receptor antagonist	RQ-00466479		Neuropathic pain	Asahi Kasei Pharma	Global	
	Retinoic acid receptor	TM-411	tamibarotene	Cancer, leukemia	Syros Ohara Pharmaceutical	Syros-U.S. Ohara-Japan	TMRC
	Program	Compound code	INN	Target	Licensee	Territory	Remarks
Veterinary drugs	EP4 antagonist	RQ-00000007	grapiprant	Osteoarthritis	Aratana Therapeutics	Global	Applied for regulatory approval in February 2016, expect approval to be granted in 2018
	Ghrelin receptor agonist	RQ-00000005	capromorelin	Loss of appetite		Global	Began U.S. sales for use in treating dogs in 2017. Expect to get approval and begin sales in Europe in 2018. Currently undertaking long-term toxicity studies for use in treating cats in the U.S.

Source: Prepared by FISCO from the Company's results briefing materials and interviews

The two programs for veterinary drugs both hit the U.S. market in 2017 and are currently generating royalty income for RaQualia. Going forward, work will continue toward the launch of these two programs for the treatment of dogs in Europe, as well as treatment of cats in both the U.S. and Europe.

In the field of human medicine, the Company will soon see its first drug hit the market. Its Potassium-Competitive Acid Blocker (P-CAB) is currently under development by CJ Healthcare and is expected to receive regulatory approval for commercial production and sales and be on the South Korean market before the end of 2018. 5-HT2A and D2 antagonist (ziprasidone) is currently under development by Meiji Seika Pharma. The filing for regulatory approval is expected in 2019 and drug sales are expected to begin in 2020.

The Company announced that its license agreement with Maruishi Pharmaceutical for its EP4 antagonist (RQ7/grapiprant, a new drug for treating humans) was terminated at the end of November 2017. Shortly thereafter, in December 2017, the Company licensed its selective sodium channel blocker to Maruho. The license agreement with Maruho was an especially big step for RaQualia as this was its first license agreement in the field of ion channel drug discovery.

Two drugs hit U.S. market in 2017, preparations currently underway to sell the drugs in Europe

2. EP4 antagonist (RQ-7/grapiprant, veterinary drug) and ghrelin receptor agonist (RQ-5/capromorelin, veterinary drug)

The Company licensed both grapiprant (pain management of pet osteoarthritis) and capromorelin appetite stimulation in dogs) to U.S.-based Aratana. Aratana continued working to develop the two compounds and obtained approvals from the U.S. Food and Drug Administration for commercial manufacturing and sales of grapiprant in March 2016 and of capromorelin in May 2016. After receiving the approval from the FDA, Aratana began sales of grapiprant under the trademark Galliprant® in January 2017 and capromorelin under the trademark Entyce® in October 2017.

Galliprant® was on the U.S. market for roughly 11 months during 2017 and logged sales of $23.0mn, accordingly to Eli Lilly Japan K.K. The new drug appears to have been well received, with sales rising steadily month after month.

Entyce® did not reach the U.S. market until October 2017, so there is not yet enough data to reach a conclusion about sales trends. In any case, meaningful contributions to revenues and earnings at RaQualia will only start from FY12/18. Up until now inappetence in pets has been treated with drugs used to treat the condition in humans. Entyce® is specifically formulated for pets, so market expectations are said to be high.

Having started sales in the U.S., the next target will be Europe. Galliprant® has already been applied for regulatory approval in Europe and the drug received the approval for commercial production and sales from European regulators in January 2018. Preparations are currently underway for sales to begin sometime in 2018. In terms of revenues flowing to RaQualia, in addition to the milestone payment connected to the start of sales in Europe, RaQualia will also receive royalty based on Galliprant® sales in Europe.

With respect to plans for European sales of Entyce®, preparations are currently underway to apply for regulatory approval in 2018. Based on the standard practices of European regulators, Entyce® sales are expected to begin sometime in 2019 assuming everything proceeds on schedule.

With respect to peak-year sales for these two veterinary drugs, we had previously indicated out belief that it could be as high as ¥20.0bn and see no reason to change that view at this time. In yen terms, Aratana itself has indicated a range of ¥2.5bn to ¥8.0bn for U.S. sales of one drug, and has set what appears to be a realistic target for annual sales of ¥5.0bn for each. According to Eli Lilly Japan, Galliprant® racked up sales of $23.0mn during FY12/17. Considering the fact that 2017 was the first year Galliprant® was on the market and sales started at zero but rose month after month, and sales in 2018 will start off well above zero, we believe full-year sales in 2018 could easily reach $40mn to $50mn, or roughly double the figure for 2017. With respect to the European market, surveys show that the majority of dogs in European are medium- to large-sized breeds compared with the U.S. where large breeds account for the majority of dogs. This means the size of the average dog in Europe is slightly smaller than it is in the U.S. In contrast in countries like Japan where most dogs are small breeds, the European market is thought be closer to the U.S. market and will therefore be roughly equal to the U.S. market in terms of the size of veterinary drug market. Once drug sales get on track in Europe, there will be two veterinary drugs being sold in two different regions with each drug generating roughly ¥5.0bn in annual sales in each region for a grand total of ¥20.0bn. This is the peak-year forecast we referred to at the beginning of this paragraph.

The first new human drug P-CAB is expected to reach market in 2018. Development is underway in China

3. Potassium-competitive acid blocker/P-CAB (RQ-4/tegoprazan)

RaQualia's Potassium-Competitive Acid Blocker (P-CAB)/ (RQ-4, tegoprazan) is a compound developed primarily to treat gastro-esophageal reflux, and goes by the generic name of tegoprazan. The initial license agreement for the P-CAB RaQualia made with CJ Healthcare allowed the South Korean company to sell it in South Korea, Taiwan, China, and Southeast Asia. With the new license agreement signed in December 2017, the granted sales territory for CJ Healthcare will expand to include Central and South America, Eastern Europe, and the Middle East (license agreements have not been reached for Japan, the U.S. and Western Europe though these markets are still candidates for out-licensing.)

P-CAB is a next-generation drug that is expected to replace the current mainstream treatment of Proton Pump Inhibitors (abbreviated to PPI. Leading examples of PPI are Nexium® from Daiichi Sankyo Company, Limited <4568> and Takepron® from Takeda Pharmaceutical Company Limited <4502> (hereafter, Takeda)). In the development of P-CABs, Takeda is the front- runner having already released TAKECAB® in February 2015, with the Company's product next in line.

CJ Healthcare started phase III clinical trials in South Korea in May 2015 and, after finishing, filed for regulatory approval in August 2017. CJ Healthcare is looking to get approval for commercial manufacturing and sale in 2018 and bring the drug to the South Korean market before the end of the year. For its part, RaQualia stands to receive milestone payments from CJ healthcare once the drug is cleared for sale, the sales actually begin, and then royalty payments tied to sales as well. In terms of timing, at the earliest the milestone payments will not be received by RaQualia until the latter half of 2018 and the royalty payments are not expected to make a material contribution to revenue and earnings until FY12/19. As the PPIs that the P-CAB seeks to replace have sales of roughly ¥50bn in South Korea, we do not expect the royalties from P-CAB sales in South Korea to make much of a contribution to RaQualia sales and earnings in the beginning. (According to comments by a CJ Healthcare official during an interview with a South Korean newspaper, CJ Healthcare is looking for annual sales of some 100billion won, or roughly ¥10bn.)

In addition to the direct revenues RaQualia will receive from sales of the new P-CAB drug by CJ Healthcare, we also expect to see 1) efforts to accelerate the launch of the new drug in China and 2) support for license agreements covering the Japanese, U.S. and European markets.

The Chinese market for PPIs is estimated to be worth some ¥260bn (roughly US$2.6bn), and is more than five times the size of the Korean market. CJ Healthcare has entered into an exclusive partnership agreement covering the Chinese market with a Chinese company Luoxin Pharma, and is making preparations to begin sales in China. It will be necessary to conduct clinical trials in China before the P-CAB can be sold there, but the timing of sales could differ by years depending on whether the drug is allowed to skip phase II trials. Based on the results of phase III trials and prospects for the start of commercial sales in South Korea in 2018, we believe there is a good chance that the P-CAB will be allowed to skip phase II trials in China. In that case, the impact on royalties and other income received by RaQualia from sales in the huge Chinese market can be expected sooner rather than later.

The impact of license agreements for the Japanese and U.S. and European markets is discussed in detail in the section of progress of out-licensing candidate programs..

Development of schizophrenia drug ziprasidone on track to file application for approval in 2019, bring drug to the market in 2020

4. 5-HT2A/D2 antagonist (RQ-3/Ziprasidone)

Ziprasidone is a drug indicated for schizophrenia and bipolar disorder and has already been launched by Pfizer in 75 countries and regions, including the U.S. and Europe. The Company acquired the rights for it in Japan from Pfizer and has licensed it out to Meiji Seika Pharma, Co., Ltd. Meiji Seika Pharma started phase III clinical trials in March 2015. The phase III trials are scheduled to be completed in 2018, after which the necessary preparations can be made to file for regulatory approval in 2019 with the expectation of starting sales in 2020.

In terms of the impact on the Company's business performance, it will receive milestone payments on the application for regulatory approval as a new drug and the market launch. It will also receive royalty payments as a percentage of sales following the market launch. The size of Japan's market for schizophrenia treatments is estimated to be around ¥160bn. Abilify from Otsuka Pharmaceutical Co., Ltd. (Otsuka Holdings Co., Ltd. <4578>) and second generation (atypical) schizophrenia treatments have significant market shares, but a feature of ziprasidone is that it has less side effects such as causing weight gain and elevated blood glucose values while having the same efficacy as the existing second generation schizophrenia treatments. It is expected to be prescribed not only as a single drug, but also in combination with Abilify. Considering factors such as the market size and the expected directions for usage, it may grow to become a drug with annual sales in excess of ¥10bn.

First license agreement for ion channel drug discovery

5. Selective sodium channel blocker

In December 2017, RaQualia entered into a license agreement with Maruho for its selective sodium channel blocker, some selective sodium channel blocker program developed in the course of its ion channel drug discovery program.

Sodium channels are present in muscle and nerve tissue, and are known for passing along pain and itching sensations. The program developed by RaQualia is expected to block certain sodium channels selectively and thereby alleviate pain and itching in patients.

RaQualia has expertise in the field of ion channel drug discovery, and has been pursuing joint researches with other companies and its own exploratory research on new compounds in parallel in this area. RaQualia has been conducting investigation on two programs; selective sodium channel blocker and TRPM8 blocker. The fact that RaQualia was able to license out its selective sodium channel blocker program to Maruho at an early stage in its development (even before the pre-clinical stage) is an indication of the strong potential for the compound expected by Maruho.

Now Maruho will develop drugs using this program as the active ingredient but RaQualia will continue to provide support for the development by Maruho.

In terms of the impact on sales and earnings at RaQualia, an initial payment was received at the time the licensing contract was signed (in FY12/17). Milestone payments will be due at the various stages in the development and finally RaQualia will receive royalty payments after the drug hits the market. That said, because the selective sodium channel blocker program was licensed out at an early stage in the development process, it is likely to take some time before RaQualia receives any milestone payments.

In U.S., currently in the process of developing new drugs that can be approved as “precision medicine”

6. Retinoic acid derivative (TM-411)

TMRC, acquired by RaQualia as a wholly owned subsidiary in February 2017, is currently developing retinoid, a retinoic acid derivative (compound code: TM-411, generic name: tamibarotene). TM-411 was created by Professor Emeritus Koichi Shudo of the University of Tokyo Graduate School of Pharmaceutical Science, Laboratory of Organic and Medicinal Chemistry, and cancer, especially leukemia is its target indication. Compared with existing drugs, TM-411 is more chemically stable, is safer, and exhibits higher differentiation-inducing activity. In Japan, Toko Pharmaceutical Industries Co., Ltd. carried out clinical trials and gained approval for its use in treating acute promyelocytic leukemia (APL) in April 2005 and in June that year Nippon Shinyaku Co., Ltd. <4516> began selling 2mg tablets under the brand name Amnolake®.

TMRC in-licensed TM-411 in 2004 with the aim of developing it for treating diseases other than APL. TMRC out-licensed TM-411 to a Japanese pharmaceutical company Ohara Pharmaceutical Co., Ltd. in 2014, then to a U.S.-based Syros Pharmaceuticals, Inc. in 2015 with each licensee subsequently pushing ahead with clinical development. Syros Pharmaceuticals is looking to gain approval for a new “precision medicine”* for the treatment of acute myeloid leukemia (AML) and myelodysplastic syndrome (MDS).

> * Precision medicine is a new concept that markedly differs from traditional medicine. Namely, personalized prevention and treatment are made based on the genetic information that differs in each individual. Traditional medical treatments were designed with the average patients in mind, and particularly in the cases of cancer drugs a certain drug is very effective for one group of patients but it often has little or no effect on other group of patients. In contrast, precision medicine promises to address this problem with an effective solution. Based on its self-developed “Gene Control Platform,” Syros Pharmaceuticals selects 25% of all AML and MDS patients who highly express the retinoic acid receptor (RARα) on which TM-411 acts. The development is underway as a new drug expected to show a high degree of efficacy for the target group.

At this time, Syros Pharmaceuticals has completed phase II clinical trials for treating MDS as a solo therapy and is in the midst of phase II trials for treating AML as a combination therapy. Assuming the trials remain on schedule, Syros Pharmaceutical expects the phase II trials to be completed in 2018 and will then move to phase III trials starting in 2019.

Progress of out-licensing candidate programs

Several new developments warrant attention, including establishment of joint venture with ZTE Biotech in China

1. Overview of out-licensing candidate programs

As of March 2017, RaQualia had five programs for gastrointestinal disorders and two for pain. There have been a number of events since then that warrant attention, especially in the latter half of 2017 and early 2018.

Progress under out-licensing candidate programs

List of out-licensing candidate programs

	Program	Compound code	Target indication	Area	Pre-clinical	Clinical studies			Remarks
						P-I	P-II	P-III	
Human drugs	Potassium-competitive acid blocker	RQ-00000004	GERD	Japan, U.S., Europe		Completed			P-I completed in the U.S. and Japan (FY12/15), granted a new patent in Japan and South Korea
	5-HT4 partial agonist	RQ-00000010	Gastroparesis, functional dyspepsia, functional constipation	Japan			Is being considered		Completed P-I clinical trial in U.K. Investigator initiated clinical trial collaboration with Virginia Commonwealth University (VCU) for Parkinson's disease is underway.
	5-HT2B antagonist	RQ-00310941	Gastrointestinal field, IBS	Japan		Completed			P-I completed in 2018
	Motilin receptor agonist	RQ-00201894	Gastrointestinal disease	Japan, global	Completed				Pre-clinical trial completed. The subsequent P-I is being considered.
	Ghrelin receptor agonist	RQ-00433412	Loss of appetite associated with cancer	Japan, global	Pre-clinical trial is being considered				Investigation of efficacy has been completed, pre-clinical trial is being considered
	TRPM8 blocker	RQ-00434739	Pain field	Japan, global	Pre-clinical trial is being considered				In August 2016, decided to move to the pre-clinical development stage.

Source: Prepared by FISCO from the Company materials and interviews

Since the previous FISCO report (published on April 26, 2017), the biggest business move the RaQualia has made is its joint venture agreement with ZTE Coming Biotech ("ZTE Biotech") in China. Under the agreement, RaQualia will transfer control of its 5-HT2B antagonist (RQ-941) and 5-HT4 partial agonist (RQ-10) to the joint venture which will then try to out-license these two compounds and bring them to market.

With regard to the P-CAB, as discussed previously, CJ Healthcare expects to get the approval from Korean regulators for manufacturing and marketing in 2018 and also expects to begin sales before the end of the year. We will also be watching closely whether the P-CAB's launch in the South Korea leads to any license agreements covering the big three markets of Japan, the U.S. and Europe.

In the ion channel drug discovery field, RaQualia out-licensed its selective sodium channel blocker program at the end of December 2017, as mentioned previously. Another group of compounds from this area are TRPM8 blockers. Development is proceeding smoothly in the pre-clinical stage and it looks more likely that this program will be out-licensed in the future.

RaQualia establishes joint venture with ZTE Coming Biotech, member of Chinese telecommunication giant ZTE group, with aim of speeding up out-licensing of two compounds

2. 5-HT2B antagonist (RQ-00310941) and 5-HT4 partial agonist (RQ-00000010)

(1) Joint venture established with ZTE Coming Biotech

On January 29, 2018, RaQualia announced that it had entered into a joint venture agreement with ZTE Coming Biotech (hereafter, also "ZTE Biotech"). ZTE Biotech is a member of the group headed by Chinese telecommunications equipment giant ZTE Corporation.

The joint venture company is scheduled to be officially established in 2018 and its preparations are already underway though the name of the joint venture, its location, and representative director are yet to be decided. ZTE Biotech and RaQualia will hold a 65% and a 35%, respectively, of stake in the joint venture. The purpose of the joint venture is to pursue joint development of RaQualia's RQ-941 and RQ-10. Behind the decision, RaQualia and ZTE Biotech shared a mutual interest: RaQualia wants to go with the times of sweeping regulatory reforms regarding the development of new drugs in China and large investments that are being made in field while ZTE Biotech desires to in-license compounds from overseas companies under early clinical development and speed up the out-licensing of the compounds to Chinese and global pharmaceutical companies.

After the joint venture company is officially up and running, the first thing RaQualia will do is to license RQ-941 and RQ-10 to the joint venture. The initial payment that RaQualia receives at the time of the licensing agreement will be made this year, which means it is already included in the Company's sales and earnings estimates for FY12/18. The joint venture company will then push ahead with clinical development of RQ-941 and RQ-10 with the ultimate goal of sub-licensing the compounds to domestic Chinese and also global pharmaceutical companies. With regard to the initial payments, milestone payments, and other payments received in connection with such sub-license agreements made by the joint venture company, the joint venture will initially receive the money and then split it between RaQualia and ZTE Biotech based on their proportional ownership in the joint venture.

In response to the rapid changes in drug development in China, the China Food and Drug Administration (CFDA) decided in 2015 that it would accept all drug data from the U.S. and Europe, effectively creating a drug development structure on par with the U.S. and Europe. In order to prove clinical efficacy of RQ-941 and RQ-10 as soon as possible, RaQualia and ZTE Biotech are both thinking that the joint venture company should undertake clinical trials, and the progress is expected.

(2) Status of the 5-HT$_{2B}$ antagonist (RQ-00310941)

5-HT$_{2B}$ is a receptor for a gastrointestinal hormone serotonin (5-HT), and this compound (RQ-941) has an effect to suppress the activity of 5-HT$_{2B}$, which is expected to reduce visceral pain and normalize gastrointestinal motility. Joint researches conducted with Gunma University and others have indicated that the compound controls abnormal defecation but does not have an excessive effect on normal intestine functions, and therefore it is expected to be indicated for diarrhea-dominant irritable bowel syndrome (IBS). There is a high medical need for effective treatments in this area, so the Company believes good clinical outcome leads to out-licensing and commercialization of the compound.

Based on its evaluation at the pre-clinical stage, the Company determined it was possible to proceed to clinical trials and began phase I trial in the U.K. in June 2015. All of the subsequent works under the phase I trial was completed by the end of February 2018, including the generation of the clinical study report (The Company had initially expected to finish everything by the end of 2017 but delays pushed it into 2018, and the impact of the delay on earnings was discussed previously). With the phase I trial yielding promising results that suggest the new mechanism of action of RQ-941 might be utilized to treat lower gastrointestinal disorders, the Company is looking forward to transferring the control of this compound to the joint venture with ZTE Biotech followed by out-licensing.

(3) 5-HT4 partial agonist (RQ-00000010)

RQ-10 is a compound potentially indicated for conditions including gastroparesis, functional GI disorder, and chronic constipation. It targets one of the serotonin receptors 5-HT4 and has the same pharmacological action as mosapride, which has already been launched under the brand name of Gasmotin® by Sumitomo Dainippon Pharma Co., Ltd. <4506>.

As was the case with the P-CAB, a license agreement for RQ-10 with CJ Healthcare covered South Korea, Taiwan, China, India, and East Asia. However, the agreement was terminated in December 2017 and RQ-10 is now an out-licensing candidate, though RaQualia expects to reach an agreement that grants to its joint venture with ZTE Biotech a license of the compound for China and an option for other regions outside Japan.

At this time, there has not been any further noteworthy advance. RaQualia completed phase I clinical trial in the U.K. in May 2013 in which RQ-10 demonstrated very strong efficacy and high safety profile. An investigator-initiated clinical trial in Parkinson's disease patients is also being carried out at Virginia Commonwealth University in the U.S. In April 2016, the Michael J. Fox Foundation for Parkinson's Research decided to award this trial a research grant totally $868,000 over three years. In August 2016, administration of the drug to patients with Parkinson's disease started with single dosing. Based on the results repeated dosing is ongoing as scheduled.

Start of new drug sales in South Korea expected to stimulate interest, accelerate out-licensing. Front-runner Takecab® enjoying continued growth in sales

3. Potassium-competitive acid blocker/P-CAB (RQ-4/tegoprazan)

RaQualia's P-CAB (generic name: tegoprazan) has yet to be out-licensed for the big three markets of Japan, the U.S. and Europe, and is still an out-licensing candidate program (though outside of these regions the P-CAB has already been out-licensed to CJ Healthcare of South Korea).

RaQualia completed phase I clinical trial for tegoprazan in Japan in August 2015. As CJ Healthcare was beginning phase III trials in South Korea around the same time, RaQualia decided to explore the possibility of out-licensing tegoprazan in Japan and other regions around the world while watching the progress of those trials. CJ Healthcare filed for regulatory approval in August 2017 and, at this time, the drug is expected to get the approval for manufacturing and sale and reach the market before the end of 2018. This will be a big advantage for RaQualia in our view because the launch of the P-CAB by CJ Healthcare will greatly aid RaQualia's efforts to out-license the compound in other regions.

We detailed our views on out-licensing prospects for the P-CAB in our previous report (dated April 26, 2017), and there has been no change in our stance since then. On the plus side, the target market for the P-CAB is worth roughly ¥2tr worldwide, with the PPI/P-CAB market in Japan worth roughly ¥200bn. Moreover, sales of preceding Takeda's Takecab® continued to grow with a 71% YoY increase to ¥42bn in 3Q FY3/18. On the minus side, we find rising sales of generic versions of PPI drugs in the U.S., Europe and even in Japan, so the point is how to motivate pharmaceutical companies to in-license and develop the P-CAB in these markets. The results of the phase III trials by CJ Healthcare and subsequent sales after the launch could be a pitch in this regard.

Progress under out-licensing candidate programs

Sales trends of major PPI and P-CAB drugs in Japan

(¥100 mn)

Company	Drug type	Product name	Sales					
			FY2013	FY2014	FY2015	FY2016	FY2017	
							3Q	YoY
Takeda	PPI	Takepron	676	525	413	429	-	-
	P-CAB	Takecab	-	32	84	341	420	71%
Daiichi Sankyo	PPI	Nexium	542	693	824	840	700	4%
Eisai	PPI	Pariet	473	371	304	212	139	-18%

Note: Takeda transferred Takepron® to its joint venture with Teva Pharmaceutical in FY2016, affecting the comparison with prior year sales.
Using the same base, FY2016 sales of Takepron® would have been down ¥7.7bn versus the prior year.
Source: Prepared by FISCO from the companies' results briefing materials

Progress of joint research programs

Out-licensing announced for P2X7 receptor antagonist, new compound resulting from joint research program

As a drug discovery venture company, RaQualia aims to create seeds for innovative new drugs through its own open innovation. As such, joint research programs with pharmaceutical companies are an important part of its business model. Among various joint research programs being pursued in collaboration with pharmaceutical companies such as Asahi Kasei Pharma and China-based Xuan Zhu Pharma, that with Asahi Kasei Pharma took a big step forward in March 2018.

In a press release on March 26, 2018, RaQualia announced that it entered into a license agreement with Asahi Kasei Pharma for a new P2X7 receptor antagonist that came out of the joint research undertaken by the two companies. The two companies began their joint research efforts in November 2013 with the aim of finding a development candidate that targets a specific ion channel and would be effective in alleviating pain. The collaboration succeeded in obtaining a P2X7 receptor antagonist RQ-00466479 (RQ-479)/AKP-23494954 as a new therapeutic agent for treating neuropathic pain. RQ-479 will now move to the pre-clinical development stage. Under the license agreement, Asahi Kasei Pharma will push ahead with pre-clinical development and subsequent clinical development with the ultimate goal of bringing it to market.

In terms of the impact of this license agreement on the sales and earnings of RaQualia, in addition to the initial payment received at the time the contract was signed, RaQualia can expect future milestone payments based on the progress of the development work by Asahi Kasei Pharma and then royalty income once a new drug is brought to market. There is, however, the risk that the development work will be discontinued somewhere along the way and it could still take around ten years for the product to be brought to market even if the development work proceeds smoothly.

Progress under joint research programs

We believe the new P2X7 receptor antagonist is one of development programs that warrants especially close attention by stock market investors. There are two reasons. First, the market for neuropathic pain drugs which the new P2X7 receptor antagonist targets is very large. There are various types of pain, including pain from injuries and inflammation and psychogenic pain, but neuropathic pain occurs when nerves are stimulated by pressure (from spinal stenosis, hernias, etc.), viral infections, cancer, diabetes, after-effects from injuries, and other causes. Because of the many possible causes, there are estimated some 42mn patients being treated for neuropathic pain (as of 2016). The market for neuropathic pain drugs is also very large, estimated to be worth between US$6.6bn and US$7.9bn. Drugs currently on the market for treating neuropathic pain include pregabalin (sold by Pfizer under the brand name Lyrica®) and duloxetine (sold by Shionogi and Eli Lilly under the brand name Cymbalta®), but it seems a substantial number of patients are not fully satisfied with these medications. More specifically, a large number of patients report that they cannot find sufficient pain relief without increasing the dosage and suffering side effects. Because the mechanism through which P2X7 receptor antagonists work to relieve pain is completely different from those of existing drugs, it should be possible for patients to avoid the side effects produced by existing drugs and it is also expected to be effective in treating patients that are getting no pain relief from existing drugs. As a first-line therapy or a combination therapy with existing drugs, it also looks promising as an innovative drug for treating intractable neuropathic pain.

The second reason we believe the P2X7 receptor antagonist warrants attention is the fact that it is a product of the joint research undertaken by RaQualia and Asahi Kasei Pharma, not a compound in-licensed from another company. In other words, the P2X7 receptor antagonist promises to be an extremely high-margin program for RaQualia.

We would also like to highlight the properties of the new compound. Research this far shows that in addition to its usefulness in treating neuropathic pain, P2X7 receptors are known for their relation to a number of other conditions, including Alzheimer's disease, Parkinson's disease, multiple sclerosis, and osteoporosis. Although Asahi Kasei Pharma will initially focus on the development for the treatment of neuropathic pain, we believe somewhere down the line it may also decide to expand the indications. Although the details of the licensing agreement between the two companies are unknown, common practice would suggest that RaQualia can expect additional compensation if Asahi Kasei Pharma's development efforts are expanded to include the treatment of other conditions besides neuropathic pain.

In addition to the results of its joint research program with Asahi Kasei Pharma described above, RaQualia also announced on March 26, 2018 that it received a milestone payment from EA Pharma Co., Ltd. RaQualia and EA Pharma have been doing a joint research targeting a specific ion channel to develop a drug for treating gastrointestinal disorders since October 2012. Even after the joint research agreement was terminated at the end of April 2017, EA Pharma continued development research on its own while RaQualia continued to hold the rights to the compound.

Because the relationship between RaQualia and EA Pharma is practically the same as that between RaQualia and Asahi Kasei Pharma, RaQualia can also expect to receive future milestone payments from EA Pharma based on the progress of its development efforts.

In the field of drug discovery and development where RaQualia operates, a paradigm shift is underway such as diversification of drug discovery technologies and focusing on illnesses with higher medical needs. In such an environment, we believe a drug discovery venture business like RaQualia and the open innovation framework the Company advocates will become increasingly important. Together with RaQualia's expertise in ion channel drug discovery, we believe that the drugs created through joint research projects will become a large part of its business over the medium to long term.

Results outlook

Growing stream of royalty income to increase stability of revenues and earnings.
Larger losses projected for FY12/18 attributed to special factors and are not cause for concern.
Attention to FY12/19 when Company expects to move into the black

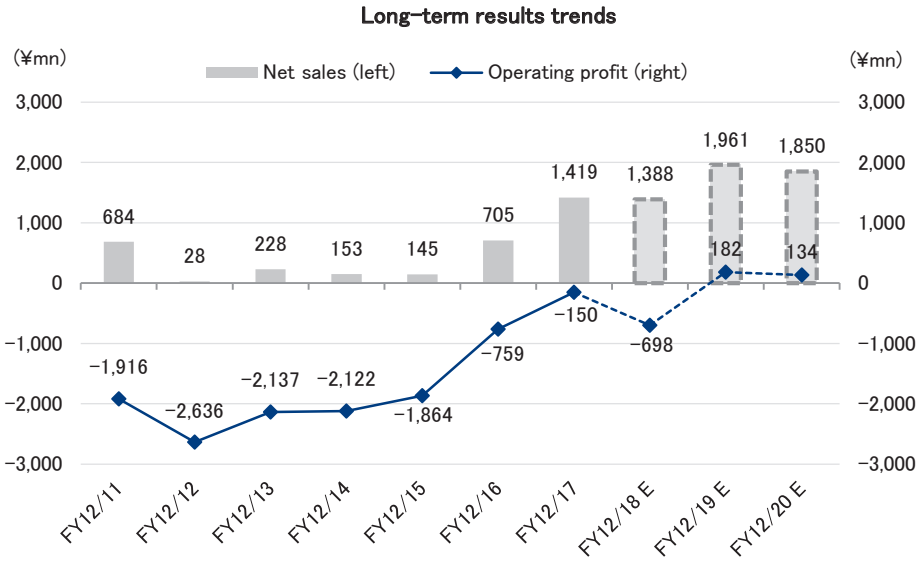
As mentioned previously, the Company has announced its sales and earnings projections out to FY12/20 in the new three-year, medium-term business plan Odyssey 2018. A rough overview of the Company's revenue structure is shown below.

Breakdown of the business revenue target

(¥mn)	FY12/16 Result	FY12/17 Result	FY12/18 Plan	FY12/19 Target	FY12/20 Target
Business revenue	705	1,419	1,388	1,961	1,850
Operating expenses	1,465	1,569	2,086	1,779	1,716
Operating profit	−759	−150	−698	182	134
Profit item	Upfront payment on the licensing-out of new program Upfront payment by right geographic or indication expansion Upfront payment or research cooperation revenue by collaboration research Milestone payment by stepping up to the next development stage Royalty				
Breakdown of business revenue	Milestone: Aratana Research cooperation revenue: Asahi Kasei Pharma, Xuan Zhu	Milestone: Aratana, CJ Healthcare Upfront paymer: Maruho, CJ Healthcare Research cooperation revenue: Asahi Kasei Pharma, Xuan Zhu Royalty: Aratana	Milestone: Aratana, Asahi Kasei Pharma, EA Pharma, CJ Healthcare Upfront payment: ZTE Biotech, Asahi Kasei Pharma Research cooperation revenue: Asahi Kasei Pharma, Xuan Zhu Royalty: Aratana	Milestone: Meiji Seika Pharma, Aratana Research cooperation revenue: Xuan Zhu Royalty: Aratana, CJ Healthcare	Milestone: Meiji Seika Pharma Research cooperation revenue: Xuan Zhu, Aratana Royalty: CJ Healthcare, Meiji Seika Pharma

Source: Prepared by FISCO from the Mid-term business plan and interviews

As discussed previously, the earnings trends in FY12/17 and FY12/18 are greatly distorted by the timing of clinical trial expenses, which were initially expected to be booked in FY12/17 but were pushed out into FY12/18 as the clinical trial in question finished roughly two months late in February 2018. The figure below shows the long-term trend in sales and earnings in the case ¥332mn in research and development expenses is booked in FY12/17 as the Company originally planned. As shown, with top-line revenues rising in conjunction with progress on the research and development front, operating losses would shrink and the Company would be in the black at the operating profit level in FY12/19.



* Results for FY12/16 and previous years are for parent company only
Source: Prepared by FISCO from the securities report

1. FY12/18 outlook

Of the ¥1,388mn in net sales projected by the Company for FY12/18, roughly 90% is expected to come from milestone payments, royalty income, and other sources that can be forecasted with a high degree of certainty, as detailed below. As mentioned previously, each income has extremely high feasibility. The Company has not disclosed any specific amounts, but since milestone payments have been set in the license contracts, we believe there is little chance these payments will vary from the Company's forecast. In contrast, royalty income will naturally vary depending on sales. The Company has not disclosed its assumptions for sales of the veterinary drugs that are on the market, but we don't see the estimates are excessively high. And while CJ Healthcare is expecting to have the P-CAB on the market before the end of FY12/18, the Company is not expecting meaningful contributions to sales and earnings from the associated royalty payments until FY12/19 and does not appear to have included any amounts in its FY12/18 forecast.

The initial payment received in connection with the aforementioned license agreement with Asahi Kasei Pharma for the P2X7 receptor antagonist appears to be included in RaQualia's forecast for FY12/18. The fact that RaQualia has been doing a joint research with Asahi Kasei Pharma for nearly five years (since November 2013) tells us that RaQualia considers its license agreement with Asahi Kasei Pharma to be a highly reliable source of income. Although the amounts received may not be enough to constitute a surprise in terms of this year's forecast as RaQualia entered into a license agreement as expected, it should be given credit for the fact that this new license agreement will further increase the degree of certainty attached to its sales and earnings forecasts for this fiscal year and subsequent fiscal years.

Results outlook

List of events and scheduled events generating business revenue

	Event	Type of revenue
FY12/18	Establish joint venture in China with ZTE Coming Biotech and receive initial payment in connection with license agreements with domestic Chinese company for RQ-10 and RQ-941	Upfront payment
	Aratana to begin EU sales of Galliprant® for treating dogs	Milestone
	Aratana continues U.S. sales of Galliprant® and Entyce® for treating dogs	Royalty
	Receive milestone payment from Asahi Kasei Pharma based on progress in joint research program	Milestone
	Conclude license agreement with Asahi Kasei Pharma covering new P2X7 receptor antagonist	Upfront payment
	CJ Healthcare gets regulatory approval, begins sales of P-CAB in South Korea	Milestone

Source: Prepared by FISCO from the Company's results briefing materials and other materials

In addition, the Company's forecast assumes that roughly 10% of the total revenues will come from payments received in connection with the signing of new license agreements. Candidate compounds include the P-CAB (for the rights to the Japanese, U.S. and European markets), a ghrelin receptor agonist, a motilin receptor agonist, a selective sodium channel blocker and a TRPM8 blocker. The amounts that would be included in the sales and earnings forecast from these sources are probably not derived from detailed forecasts for individual compounds but are rather based on the potential size of initial payments received at the time the license agreements are signed and the likelihood of license agreements being reached. In actual practice, each licensing agreement is an all-or-none proposition. There is a chance that revenues from new license agreements would be higher than expected if an agreement is reached for a major compound like the P-CAB. However, there is also a chance that the income from out-licensing is zero. In this relation, we note that the Company said the milestone payment from EA Pharma (mentioned previously) was included in its forecast for FY12/18 results. However, as it appears that the milestone payment from EA Pharma was actually a part of the 10% of the total revenues to which management attached a low degree of certainty, we believe the milestone payment from EA Pharma may have already given RaQualia some of the 10% of the total revenue that it was looking for from low-probably sources.

As for business expenses, for the most part expenses have changed little from FY12/17. The exception is research and development expenses, which as discussed previously will go up significantly this year and depress earnings because the expenses associated with the phase I clinical trials in the UK will end up being booked this year.

2. Outlook for FY12/19

In FY12/19, the Company sees sales rising ¥573mn YoY to ¥1,961mn. This represents a very substantial increase of ¥273mn versus its previous forecast, based on royalties expected to be received from the sales of two veterinary drugs and sales of the P-CAB by CJ Healthcare. During FY12/19 the Company also expects to see a milestone payment from Meiji Seika Pharma in connection with its regulatory filing for approval of ziprasidone as well as a milestone payment from Syros Pharmaceuticals based on the progress of clinical trials of TM-411, an out-licensed compound from the subsidiary TMRC.

Business expenses are expected to come down in FY12/19 as research and development expenses return to normal and other expenses remain basically flat. Combined with a sharp increase in top-line revenues and the drop in expenses, the operating profit is expected to move out of the red and into the black of ¥182mn.

3. Outlook for FY12/20

For FY12/20, the Company is projecting a ¥111mn decline in sales versus the previous year. Although royalty income from sales of the two veterinary drugs and the P-CAB are expected to continue rising at a steady pace and a new royalty stream is expected from sales of ziprasidone, the Company expects few milestone payments during the year. At the same time, however, overall business expenses are expected to decline as the costs associated with milestone payment also come down. And even though operating profit is projected to come down versus FY12/19, the Company expects to remain in the black.

For our part, we are not especially concerned about the Company's projection for lower sales and earnings in FY12/20 because there are too many variables at this point. In addition to the possibility of additional milestone payments stemming from new license agreements that the Company might enter into in FY12/18 and FY12/19, there is also a possibility of receiving a milestone payment based on the progress made by the Chinese company to which CJ Healthcare sub-licensed the P-CAB. It might also be the case that initial payments from new license agreements are enough to cover the expected slump in income from milestone payments.

Financing

With business income rising steadily, financing needs expected to be minimal. Company also looking to diversify sources of funding

It has become increasingly evident that RaQualia is on the right track to becoming profitable, but the Company is still in the middle of establishing a steady source of earnings and securing financing to operate its business remains an important issue. The Company's basic policy on financing has not changed as follows: 1) maintain a balance of funds of ¥3.0bn at the end of each fiscal year to cover business operating expenses, 2) obtain working capital by increasing cash received from business revenue while holding down business expenditures, 3) allocate surplus funds to research and development to seek quicker monetization of the products of its development efforts, and 4) tell a clear equity story that shows just how the new funding will lead to an increase in shareholder value when raising funds from the market.

At FISCO, we believe the addition of a very stable source of earnings like royalty income to the Company's revenue base together with the expected increase in business income in the year ahead will keep its external financing needs to a minimum. With visibility improving and prospects for the business becoming increasingly clear, we believe the Company might do well to consider debt financing as a better alternative.

FISCO

Disclaimer

FISCO Ltd. (the terms “FISCO”, “we”, mean FISCO Ltd.) has legal agreements with the Tokyo Stock Exchange, the Osaka Exchange,and Nikkei Inc. as to the usage of stock price and index information. The trademark and value of the “JASDAQ INDEX” are the intellectual properties of the Tokyo Stock Exchange, and therefore all rights to them belong to the Tokyo Stock Exchange.

This report is based on information that we believe to be reliable, but we do not confirm or guarantee its accuracy, timeliness,or completeness, or the value of the securities issued by companies cited in this report. Regardless of purpose,investors should decide how to use this report and take full responsibility for such use. We shall not be liable for any result of its use. We provide this report solely for the purpose of information, not to induce investment or any other action.

This report was prepared at the request of its subject company using information provided by the company in interviews, but the entire content of the report, including suppositions and conclusions, is the result of our analysis. The content of this report is based on information that was current at the time the report was produced, but this information and the content of this report are subject to change without prior notice.

The final selection of investments and determination of appropriate prices for investment transactions are decisions for the recipients of this report.

FISCO Ltd.