



TSE Code : 4585

Supplementary Documents of Business Results for First Six Months of Fiscal Year 2017 ending Dec.31, 2017

Tatsuyoshi Hirano
Chairman & CEO

July 31, 2017



Addressing Unmet Medical Needs
UMN Pharma Inc.

- Business Results for First Six Months of FY 2017
- Business Progress for First Six Months of FY 2017
- Mid-Term Business Plan: FY2017—FY2021
*Disclosed on Feb.22, 2017

■ Business Results for First Six Months of FY 2017

■ Business Progress for First Six Months of FY 2017

■ Mid-Term Business Plan: FY2017—FY2021

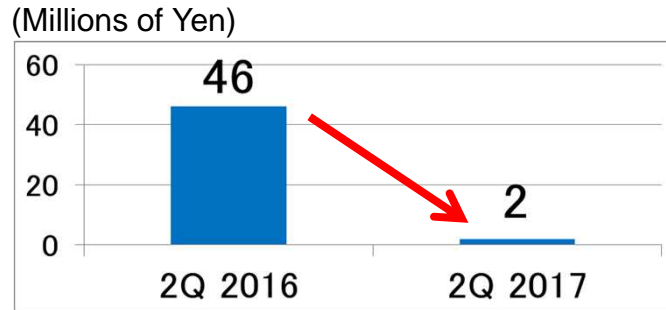
*Disclosed on Feb.22, 2017

Summary of Financial Results for First Six Months of FY2017 vs FY2016



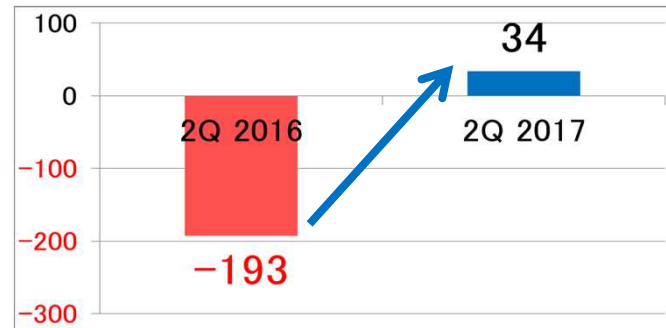
- Income/Loss 2Q : Positive due to non-operating income from orphan drug grant for UMN-0501
- Net assets as of 2Q 2017 : Positive net assets at the end of December 2017 expected same as 1Q

Net Sales



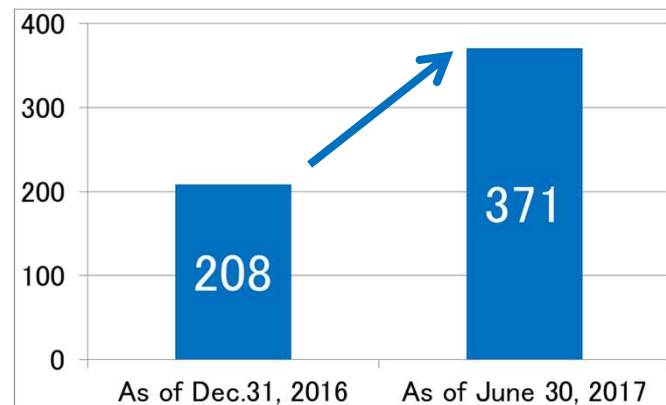
- Sales from alliance: Not yet realized under negotiation
- Sales from BCMO: ¥2 Mil from on-going projects

Net Income/ Loss



- All of restructure for UMN-0502 completed by the end of 2Q
- Positive net income due to orphan drug grant for UMN-0501 at the end of 2Q
- Keeping cost saving through every aspects

Net Assets



- Net assets as of June 30, 2017: ¥371 Mil.
- Positive net assets the end of FY2017 expected same as 1Q
- Amount of Common stock & Capital surplus after capital reduction
Common stock : ¥217 Mil.
Capital surplus : ¥217 Mil.

Degree of Current Progress to Full Year Financial Forecasts for FY2017



- Net Sales : Not yet realized sales in spite of new orders; Sales expected to realized at the second half
- Incomes : Operating income in line with budget due to cost saving offset shortage of sales

| (Millions of Yen) Except for per share data | FY2017(Full Year) - Forecasts* - | 1 st half FY2017 - Actual - | Progress on Full Year Forecasts | Remarks |
|---|-------------------------------------|---|---------------------------------------|--|
| Net Sales | 153 | 2 | 1.9% | ¥2 Mil. sales from BCMO; several quotations for BCMO submitted and negotiations for alliance continued to realize sales at the 2 nd half |
| Operating Income | (512) | (315) | 61.4% | R&D expenses : ¥193 Mil. G&A expenses : ¥122 Mil. · 1 st half : Restructuring and 0502 related cost · 2 nd half: Continuous cost saving to conclude in line with budget |
| Ordinary Income | (167) | 34 | —% | Positive due to ¥336 Mil. non-operating income from orphan drug grant for UMN-0501 |
| Net Income | (170) | 34 | —% | Same as above |
| Basic Earnings per share | ¥(13.96) | ¥2.79 | | |

* Financial forecasts disclosed on March.24, 2017

■ Business Results for First Six Months of FY 2017

■ **Business Progress for First Six Months of FY 2017**

■ Mid-Term Business Plan: FY2017—FY2021

*Disclosed on Feb.22, 2017

- Redefine our Mission
- Change From full- scale manufacturing model To Create New Value by making use of our advantage



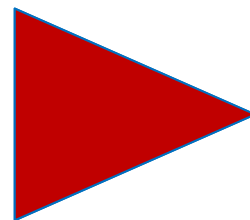
Restart to change from full-scale manufacturing model to focus on CMC development and preparation to commercial production

Our Redefined Mission

Create and supply high value added bio-pharmaceuticals to contribute to the society by developing bio-pharmaceuticals to satisfy unmet medical needs, supporting and bridging development process from research level to development level and furthermore supplying existing good seeds over the world

Past

A Model as Mass Production
for One Item in Big Plant
to Supply UMN-0502

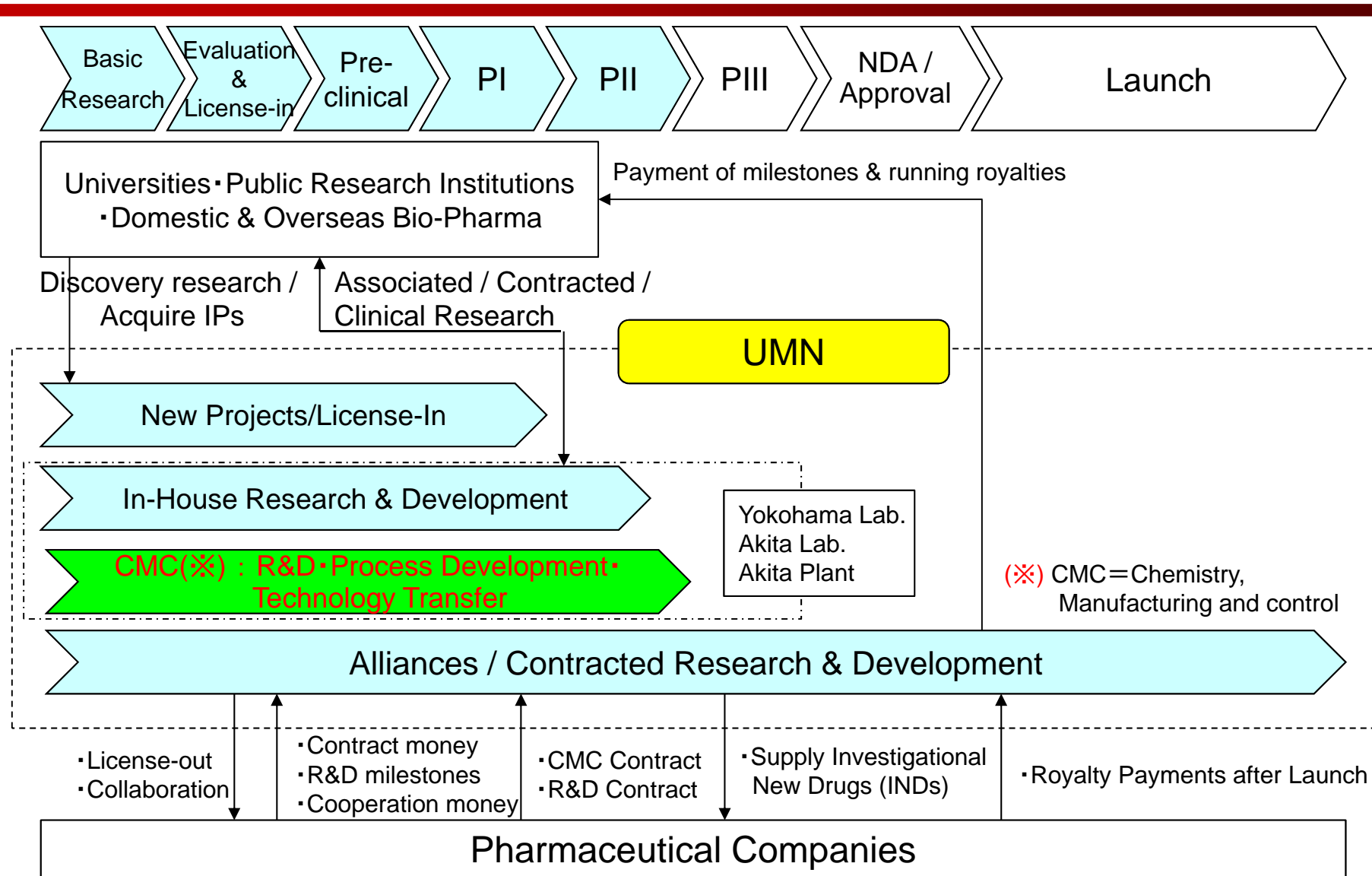


From now on

A Business Solution Model
Focusing on a part of
Development Process
with Risk Averse and Flexibility

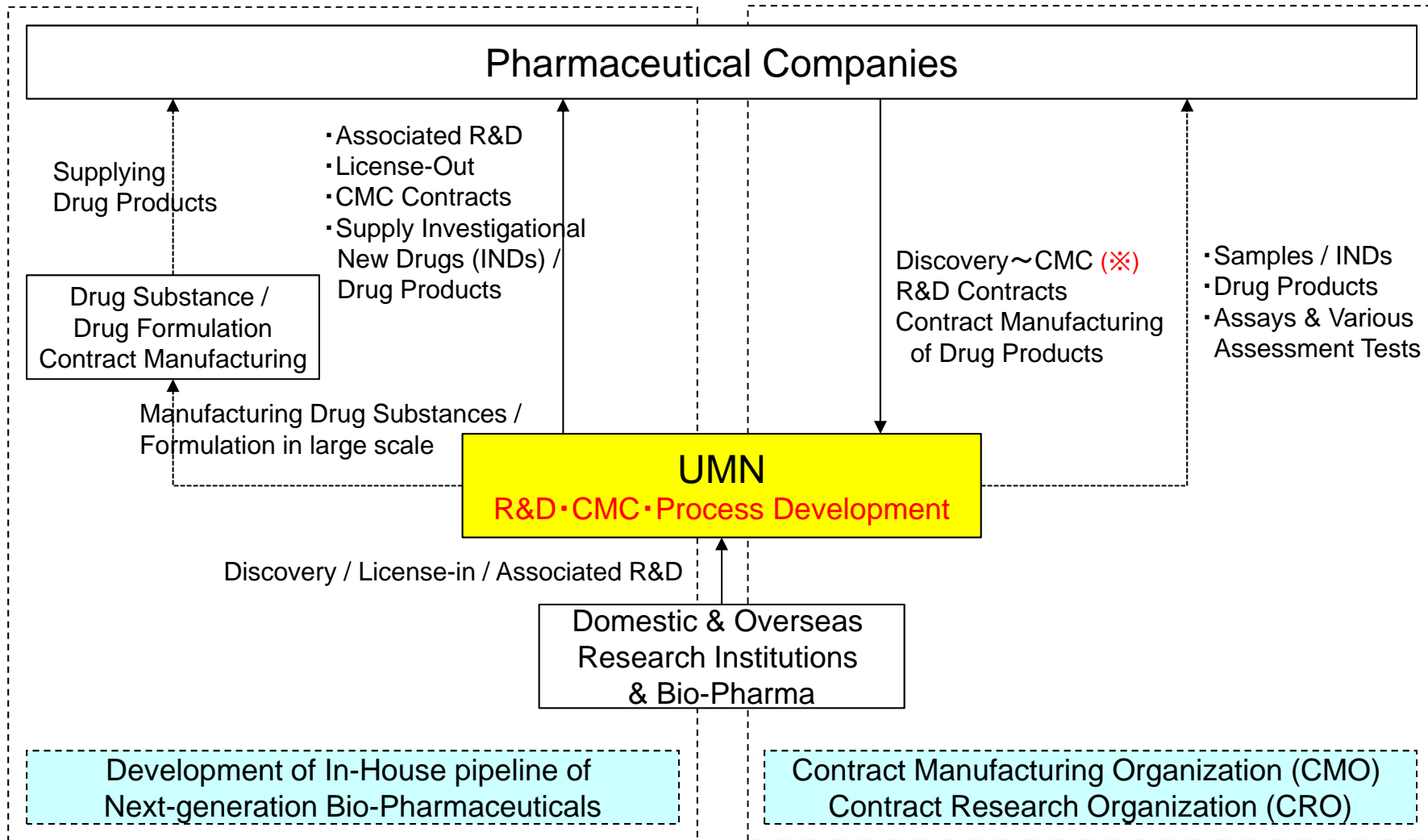
Business Targets of Regenerated UMN *Disclosed on Feb. 22, 2017

- Broad range of bio-pharmaceutical: Not confined to those for human use,
- Specializing in CMC & Process Development, utilizing Yokohama Lab., Akita Lab. & Akita Plant



Continue Major Pipelines & Utilizing Existing Resources *Disclosed on Feb. 22, 2017 :

- Pillars: Development of In-House pipelines of Bio-Pharmaceuticals and CMO & CRO Business
- Resources: Akita Plant for CMC Research & Development and Process Development



(※) CMC=Chemistry, Manufacturing and control

Resources for New Business Model of Regenerated UMN *Disclosed on Feb. 22, 2017

- Formation for CMC & Process Development → up to Commercial Production at Akita Plant
- Providing Seamless & Speedy Service: from Animal Studies through to Production



Yokohama Lab. (R&D Function)



- Up to 250 liter biological reactors X 1
- Total 12 biological reactors
- Production of samples for basic research

Akita Plant (CMC Function)



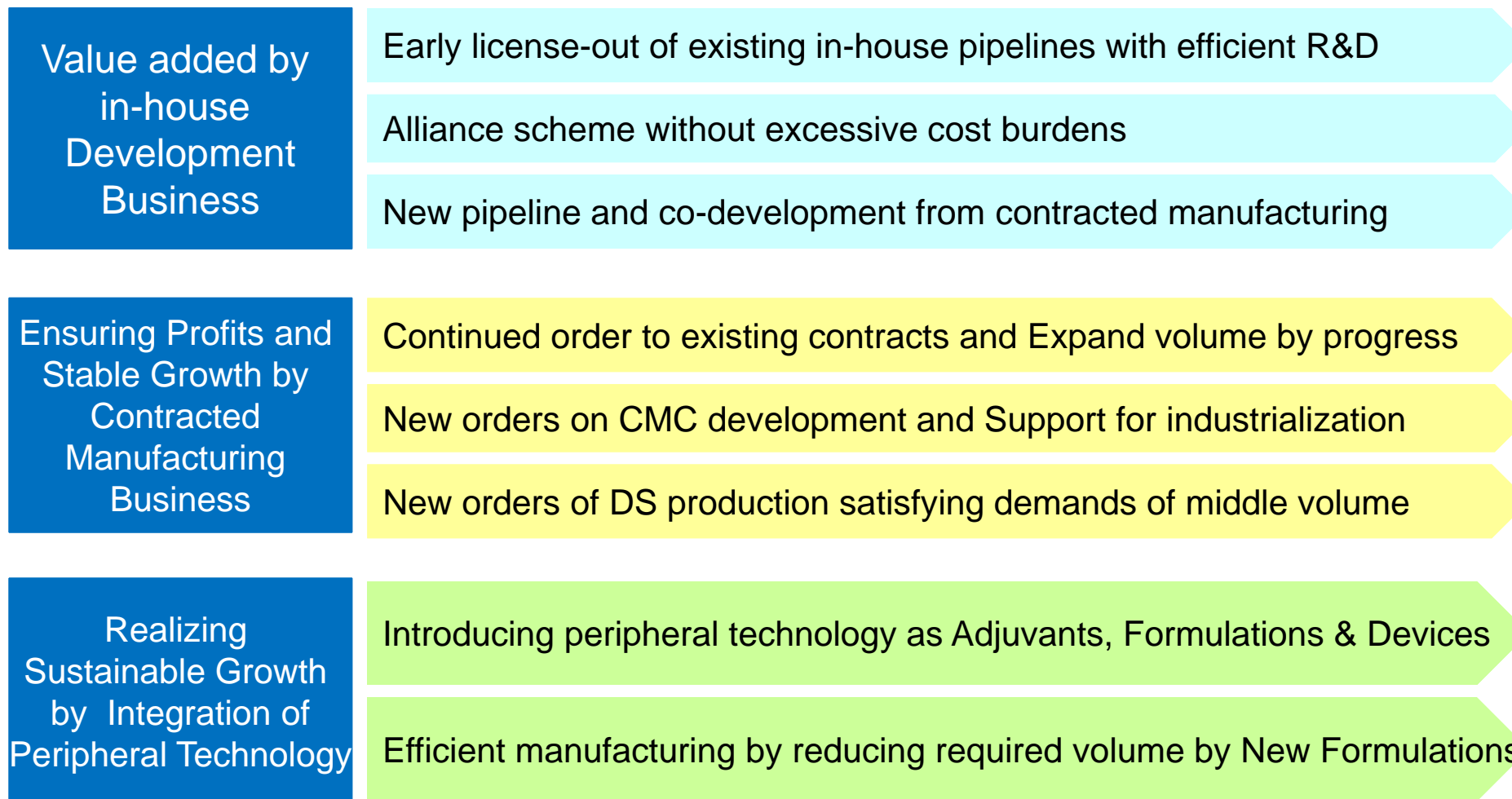
- Up to 600 liter biological reactors X 3
- Production of investigational drugs (quasi-GMP)
- Production of drug substance (transferrable to GMP)
- Biological assays & analyses

Akita Lab. (Laboratory Animal Study Function)

- Various kinds of animal studies of sample products produced at Yokohama Lab. & Akita Plant
- Validation of sample swiftly, contributing to speed up development period

Major Action Plan for New Business Direction *Disclosed on Feb. 22, 2017

- Ensuring Profits prioritized by Equity Efficiency, Investment Efficiency
- Accomplishing plans to improve Added Value and Sustainable Growth with ensuring Profits



Business Direction in In-House Development *Disclosed on Feb. 22, 2017

- Existing Projects : Focus on BEVS using existing know-how for global expansion
- New Projects : Research and introducing not only BEVS but also New Seeds



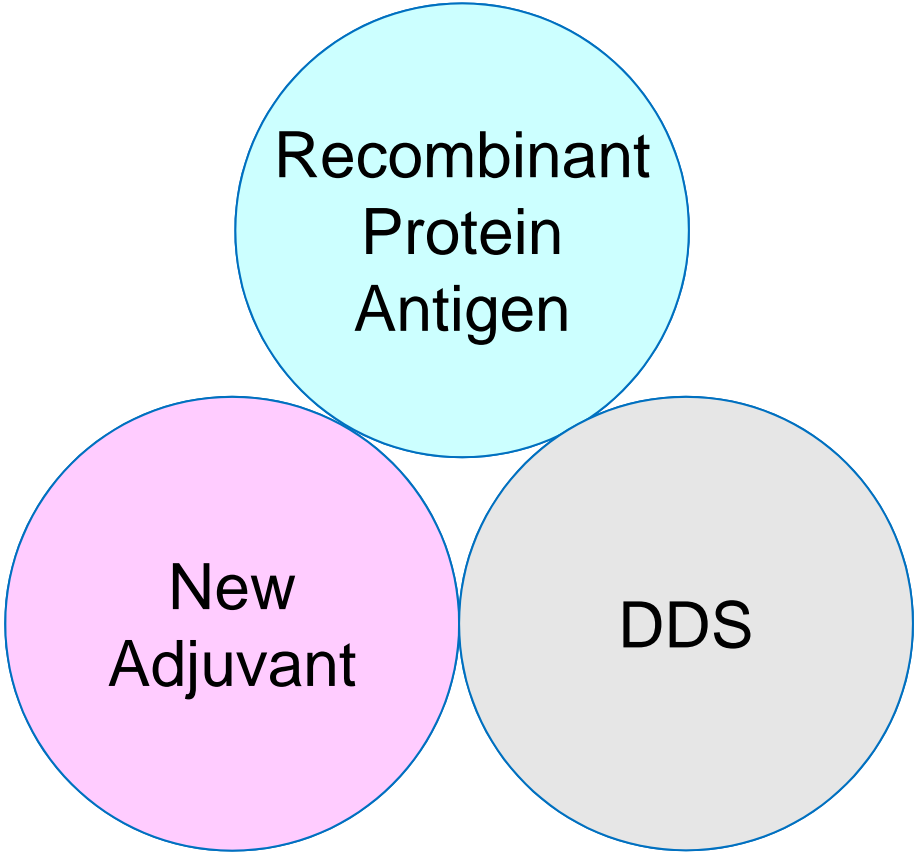
| | | | | |
|-----------------------------|-------------------------|--|---|---|
| Existing In-House Pipelines | UMN-0502/0501 | Domestic: Careful consideration required of resource constraint and possible return of investment Eastern Asia: Expanding to areas advantage for Flublok® data | ▶ | 2 requirements for re-trial • Feasibility of basic technology for domestic licensure • Peripheral technology able to efficient production |
| | UMN-2002/2003 | Constraint of cost burden by ourselves | ▶ | • Reconsideration with development in overseas • UMN-2001 as Rotavirus vaccine |
| | Zika Vaccine Consortium | Consortium as opportunities to establish connections with companies and governments for each countries | ▶ | Acquiring development rights overseas as pioneer case of global development |
| New Projects | BEVS | <ul style="list-style-type: none"> ➤ Introducing later stage projects than existing projects ➤ Introducing peripheral technology as adjuvants, formulations and devices for efficient production with high added value by packaged peripheral technology | | |
| | Non-BEVS | <ul style="list-style-type: none"> ➤ Avoiding risks too much dependency on BEVS to introduce new projects based on non-BEVS technology with synergy | | |

Accelerating Development of Logical Vaccine

- Integrate new adjuvant and drug delivery system with recombinant protein antigen from our technology



Concept of Logical Vaccine



New vaccine with high efficacy and high productivity created due to integration of above technologies

Start Joint Research with NIBIOHN

—Cutting edge pharmaceuticals, ex. novel vaccine, with high value added and high productivity using synergy both new adjuvant of NIBIOHN and manufacturing technology of UMN



NIBIOHN

- Provide new adjuvant seeds
- Evaluate the results of assay by UMN

UMN Pharma

- Make recombinant vaccine with new adjuvants
- Verify adjuvant effects for tests by animal
- Hold exclusivity toward commercialization



Recombinant Protein Antigen

New Adjuvant

DDS

※Under review various technology

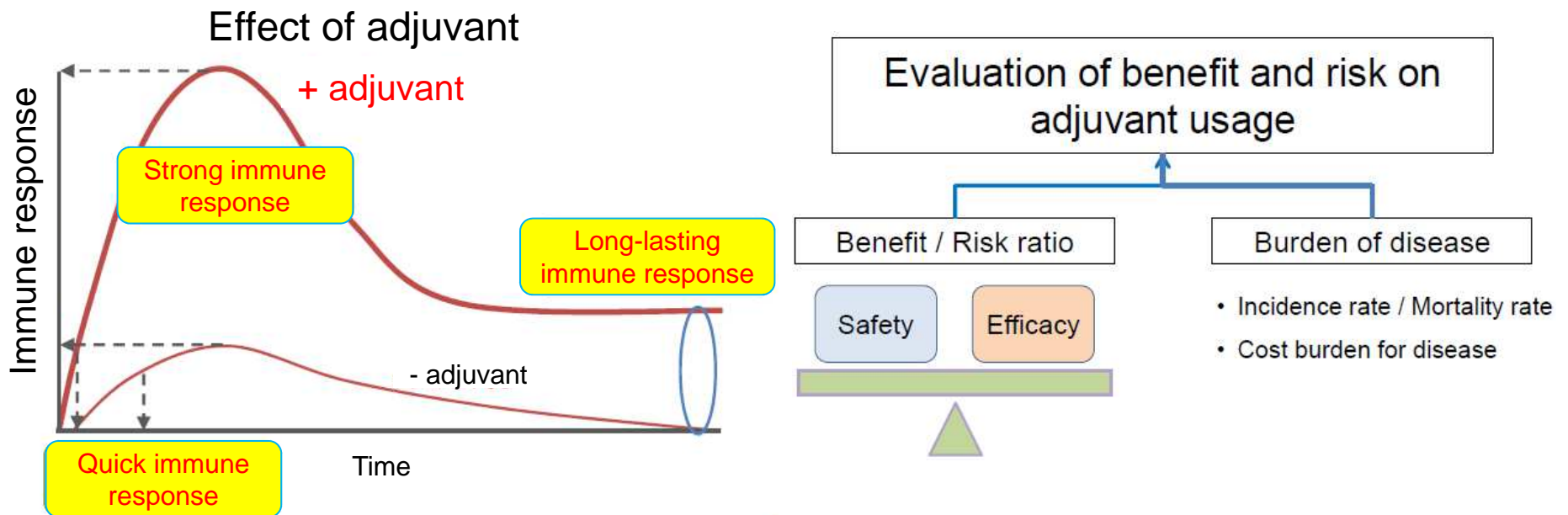
What is Adjuvant?

- Chemicals enhancing the effectiveness of vaccine
- As an origin, “adjuvare” in Latin meaning “help”



- How to choose optimal adjuvant is along a good path by more deeply understanding immune response
- Adding adjuvant is an important option to vaccines against emerging infectious diseases as well as vaccines against RNA virus with easy mutation
- Adjuvant is a key to research and development of vaccine beyond infectious diseases

Adjuvant as a key to create vaccines holding both high efficacy and high productivity



Status of R&D pipeline and Business Development Plan



- ① UMN-0502 : Deployment in Asia Advanced on Approval of Flublok® Quadrivalent
- ② UMN-2001 / 2002 : Focusing on Overseas Development / Starting Clinical Trial early

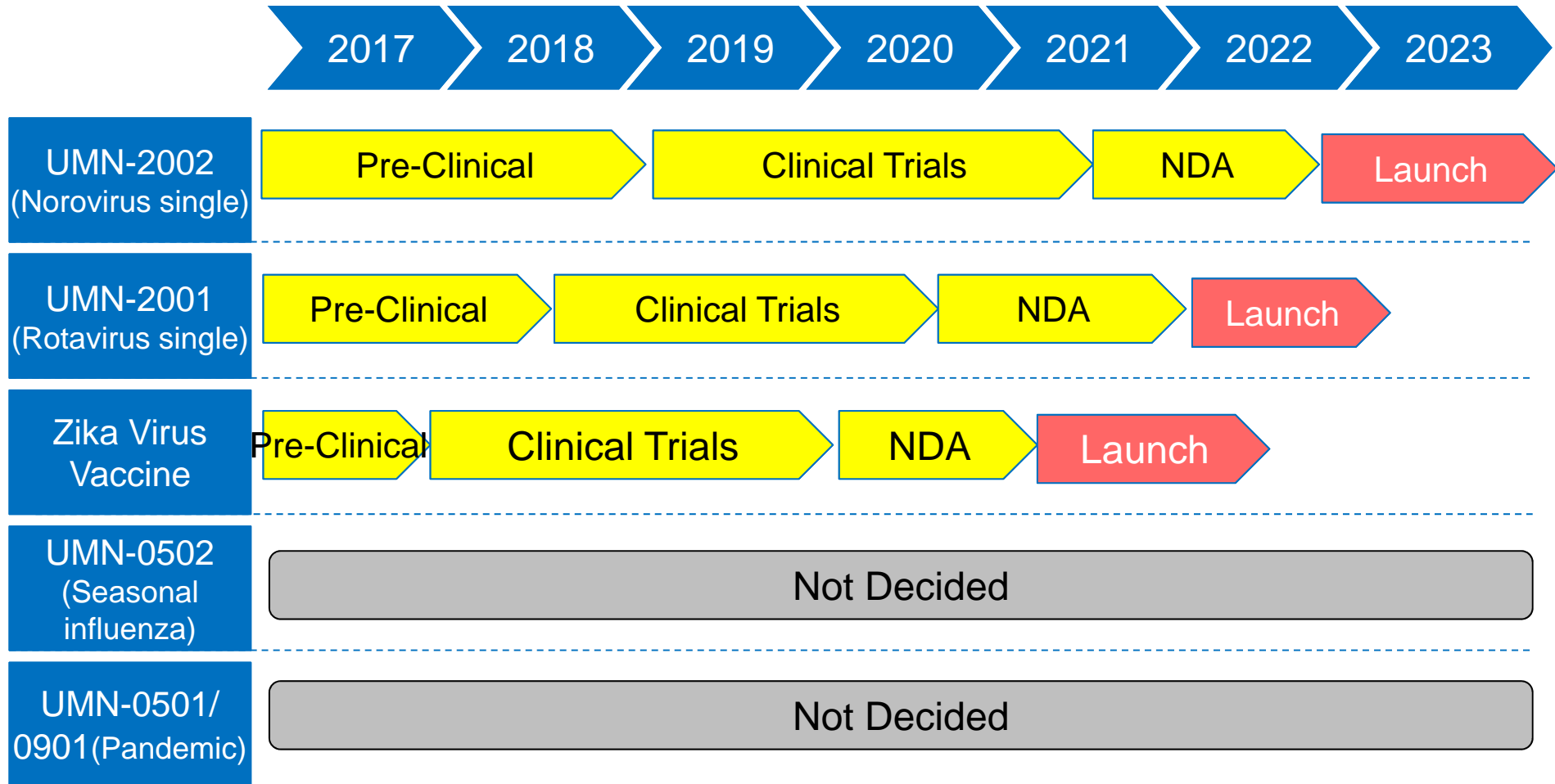
(As of July 2017)

| Name | Target Disease | Area | Discovery | Pre-Clinical | PI | PII | PIII | NDA | Launch |
|---------------|------------------------------|--|-----------|--------------|----|-----|------|-----|--------|
| UMN-2002 | Norovirus VLP Single Vaccine | World markets | Completed | | | | | | |
| UMN-2001 | Rotavirus VLP Single Vaccine | World markets | Completed | | | | | | |
| — | Zika virus Vaccine | Not decided | Completed | Ongoing | | | | | |
| UMN-0502 | Seasonal Influenza Vaccine | Japan | Preparing | | | | | | |
| | | China • Korea • Taiwan • Hong Kong • Singapore | Preparing | | | | | | |
| UMN-0501/0901 | Pandemic Influenza Vaccine | Japan | Preparing | | | | | | |
| | | China • Korea • Taiwan • Hong Kong • Singapore | Preparing | | | | | | |

= Completed
 = Ongoing
 = Preparing

Existing In-House Pipeline : Development Plan : COMMITMENT

- Start clinical trials for at least one of the existing in-house pipelines during FY2018
- Launch at least one of the existing in-house pipelines during FY2022



Status of negotiations for alliance in in-house development projects

- To promote negotiations for alliance both individual pipelines and business & technology



| | | |
|-----------------------|--------------------|--|
| Individual Pipelines | UMN-2001 | ➤ Discussed with multiple joint candidate in view of overseas development |
| | New Project | ➤ Examined new projects of a collaborative research with National Institute of Biomedical Innovation, Health and Nutrition (NIBIOHN) regarding new adjuvant and formation technology |
| Business & Technology | Human-use Medicine | ➤ Discussed alliance candidates who have business strategies to take full advantage of synergies with our business and technology |

Directions for Contracted Manufacturing on CMC Development & Industrialization*

- BEVS: Continuous Existing Orders and New Orders → In-House Development
- Non-BEVS: New Orders not only Human-Use → Continuous Orders



* Disclosed on Feb. 22, 2017

| | | |
|------------------------------|-----------|--|
| B E V S | Existing | <ul style="list-style-type: none"> ➤ Ensured orders having intentions of continuity <ul style="list-style-type: none"> - HTLV-1 vaccine antigen candidate and vaccines with new concepts for some infectious diseases |
| | New | <ul style="list-style-type: none"> ➤ New orders for DS manufacturing of new vaccine antigen candidates ➤ New orders for new technologies including adjuvants and formulation |
| Non - B E V S | Human-Use | <ul style="list-style-type: none"> ➤ Contacted manufacturing without development elements by ourselves <ul style="list-style-type: none"> - Quotations from potential customers over the world ➤ Opportunities of collaborations with those considering CMO business <ul style="list-style-type: none"> - Several companies to show their interest |
| | Others | <ul style="list-style-type: none"> ➤ New orders not confined to human-use pharmaceuticals <ul style="list-style-type: none"> - Several Domestic candidates |

Results in Contracted Manufacturing as of 2Q in FY 2017

- BEVS : Delayed in order due to delays in budget execution, catch up within FY2017
- Non-BEVS : Continued follow-up for already submitted quotations



| | | |
|----------|-----------|--|
| BEVS | Existing | <p>4 goals → Actual 1 order (Currently 2), Submitted 1 quotation in 2Q</p> <ul style="list-style-type: none"> ➤ Some budget executions of customers are delayed. ➤ Already submitted quotations after June. ➤ There are also possibilities of additional orders that are not taken into account, and the prospect of catch-up within FY2017 |
| | New | <p>3 goals → Actual 0 order, 2 quotations in 2Q</p> <ul style="list-style-type: none"> ➤ Submitted 2 quotations including using the Akita plant ➤ Transition to collaborative research with National Institute of Biomedical Innovation, Health and Nutrition (NIBIOHN) including new adjuvant and formation technology |
| Non-BEVS | Human-Use | <p>0 goal → Actual 0 order, 1 quotation in 2Q</p> <ul style="list-style-type: none"> ➤ Conservatively 0 result in the forecast, however, there are multiple candidates. ➤ 1 quotation has been submitted on use of Akita plant, now under consideration on client side |
| | Others | <p>0 goal → Actual 0 order, 0 quotation in 2Q</p> <ul style="list-style-type: none"> ➤ Conservatively 0 result in the forecast ➤ Including cases other than human medicines in new BEVS projects |

•The second half actions in order to complete FY2017 Business Plan:

- In-house development: Realization of alliances and acceptance of the contract lump-sum payment
- Contract manufacturing: On-time completions of ordered projects and focus on acquisition for quoted orders in progress



| | | |
|------------------------|------------------------|--|
| In-house development | Individual Pipeline | <ul style="list-style-type: none"> ➤ To develop logical vaccines and realize alliance contracts with alliance candidates as a result |
| | Business & Technology | <ul style="list-style-type: none"> ➤ To accelerate negotiations with alliance candidates in progress and realize the partnership in FY2017 ➤ To advance negotiations regarding mutual synergies with alliance candidates who are tackling the new business, and realize the contract in FY2017 |
| Contract manufacturing | Human-use Medicine | <ul style="list-style-type: none"> ➤ To steadily receive orders for ongoing projects, and secure the sales figures within FY2017 ➤ To accept the orders for multiple new projects quoted or estimated in preparation, and secure the sales figures within FY2017 |
| | Non-Human-use Medicine | <ul style="list-style-type: none"> ➤ To accelerate the ongoing negotiations on projects quoted, accept the orders, and secure the sales figures |

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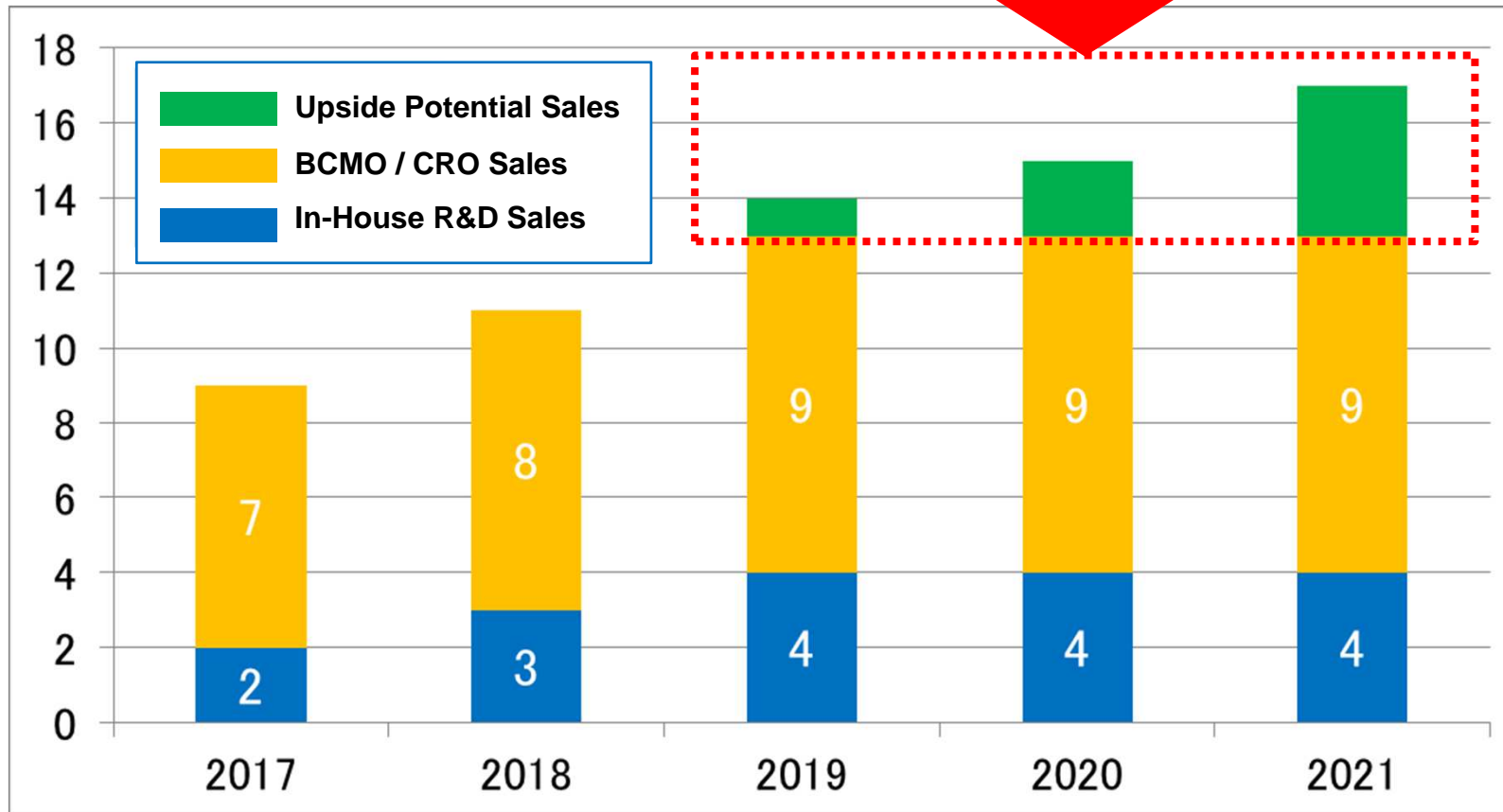
Goal of Mid-Term Plan: Number of Contracts to REALIZE*

- Disclosed mid-term financial figure reflects only those realizable or under detailed negotiations
- Potential contracts & sales will be challenged to realize as additional sales



Potential Contracts Will be Challenged & Added

(Cumulative Number of Contracts)



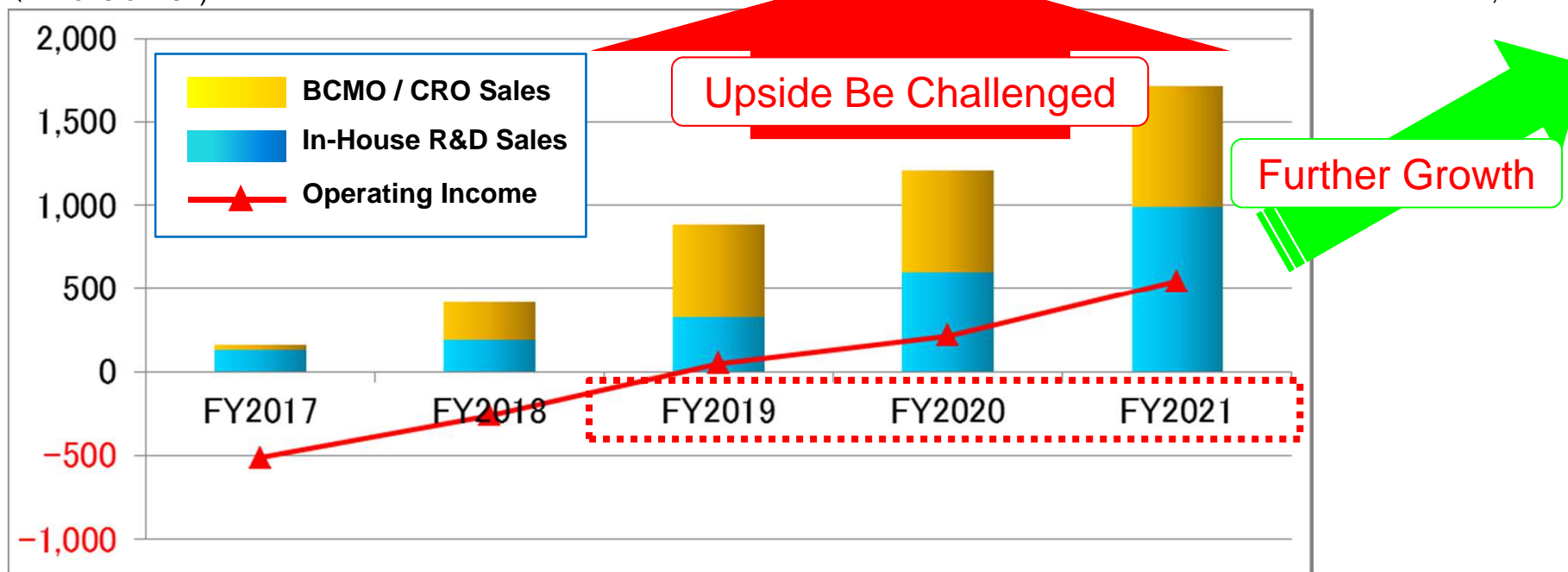
*Disclosed on Feb. 22, 2017

FY2017—FY2021 Mid-term Business Plan : 5 Year Financial Targets*
 —Net Profits : Turn Positive in FY2019, Further Growth will be Challenged



(Millions of Yen)

*Disclosed on Feb. 22, 2017



| Non-consolidated (Millions of yen) | FY2017 | FY2018 | FY2019 | FY2020 | FY2021 |
|---------------------------------------|--------|--------|--------|--------|--------|
| Net Sales | 153 | 400 | 880 | 1,200 | 1,700 |
| Operating Income | △512 | △270 | 40 | 200 | 530 |
| Net Profits | △170 | △275 | 35 | 170 | 450 |

FY2017—FY2021 Mid-term Business Plan: Conditions & Assumptions
 –Sales / Cost of Sales *Disclosed on Feb. 22, 2017



| | Point | Conditions & Assumptions |
|--------------------|---|--|
| In-House R&D Sales | <ul style="list-style-type: none"> To realize alliances on existing pipelines such as UMN-2002 / 2001 & newly established pipelines during this mid-term business period | <ul style="list-style-type: none"> Counting on sales from contract fees and milestones regarding alliances of UMN-2002 / UMN-2001, besides revenues from running royalties projected on and after FY2022 Counting on sales from contract fees and milestones regarding newly established in-house pipelines ※As for the business for development of in-house pipeline of next-generation bio-pharmaceuticals, timing and terms of the contracts could be different from those planned in the sales forecasts, dependent upon progress of the developments or negotiations. Regarding CMO and CRO business, contract orders could not be received as planned or acceptance validation could be delayed, which could badly influence the sales forecasts. |
| BCMO/ CRO Sales | <ul style="list-style-type: none"> Acquiring new contracts while continuing and expanding existing and ongoing contracts | <ul style="list-style-type: none"> Assuming existing and ongoing BCMO contracts would continue and expand, contributing to future sales Assuming a part of potential BCMO business items currently under negotiation would be realized and contribute to sales ※As for the business for development of in-house pipeline of next-generation bio-pharmaceuticals, timing and terms of the contracts could be different from those planned in the sales forecasts, dependent upon progress of the developments or negotiations. Regarding CMO and CRO business, contract orders could not be received as planned or acceptance validation could be delayed, which could badly influence the sales forecasts. |
| Cost of Sales | <ul style="list-style-type: none"> Variable expenses for each projects are factored into COS | <ul style="list-style-type: none"> As for in-house pipelines, royalty payments to licensors are assumed and counted As for BCMO / CRO business, variable expenses are projected and counted considering each business nature ※R&D costs could be more than initial plan, which could affects the financial results. |

FY2017 – FY2021 Mid-term Business Plan: Conditions & Assumptions*

– R&D Expenses / Selling, General and Administrative Expenses



*Disclosed on Feb. 22, 2017

| | Point | Conditions & Assumptions |
|----------------|---|--|
| R&D Expenses | <ul style="list-style-type: none"> Flexibly make investment to acquire contracts and realize sales | <ul style="list-style-type: none"> Running expenses for Akita plant are counted from FY2017 Certain amount of increase in variable costs are projected as securing additional R&D staff members are anticipated <p>※R&D costs could be more than initial plan, especially as for in-house R&D where clinical research expenses could be additionally surpass initially anticipated costs, which could affects the financial results.</p> |
| SG&A Expenses | <ul style="list-style-type: none"> SG&A expenses for Akita plant are counted on and after FY2017 | <ul style="list-style-type: none"> Curtailed SG&A expenses after overall organizational restructuring are factored into the projection SG&A expenses for Akita plant are counted from FY2017 |
| Other Expenses | <ul style="list-style-type: none"> Nothing to refer specifically | <ul style="list-style-type: none"> No major non-operating expenses are projected, as there are no interest-bearing debt and other exposed and/or contingent liabilities, such as debt guarantee, which could lead to non-operating expenses. <p>※As a general rule, contractee would bear facilities preparation costs, but depending on terms and conditions of agreement, related costs would be borne by contractor..</p> |

Appendix

Financial Results for First Six Months of FY2017

Summary of Financial Results for First Six Months of FY2017

(From Jan. 1, through June 30, 2017)

- Comparison to the corresponding term of the previous Fiscal Year -



| (Millions of Yen) | 1 st half of FY2016 - Actual - | 1 st half of FY2017 - Actual - | Change | | Remarks |
|---------------------|--|--|--------|---------|---|
| Net Sales | 46 | 2 | (43) | (93.6)% | Significant sales shortage due to cancellation of joint research etc.; sales from alliance realized at the 2 nd half |
| Cost of Sales | 25 | 1 | (23) | (92.6)% | |
| R & D expenses | 120 | 193 | +73 | +60.8% | Increasing expenses due to settlement of UMN-0502 |
| Other SG&A expenses | 131 | 122 | (8) | (6.3)% | Saving from the last year due to cost reduction including tax saving by capital reduction offset restructuring costs |
| Operating Income | (230) | (315) | (84) | —% | Increasing operating loss comparing from the last year |
| Ordinary Income | (192) | 34 | +227 | —% | Positive due to non-operating income from orphan drug grant for UMN-0501 |
| Net Income | (193) | 34 | +227 | —% | Same as above |

Balance Sheets as of June 30, 2017 vs. Dec. 31, 2016

- Total Assets decreased ¥228 Mil. to ¥465 Mil.
- Net Assets increased ¥169 Mil. to ¥371 Mil.



| (Millions of Yen, fractions dropped) | FY2016 (As of Dec. 31, 2016) | 1 st half of Fy2017 (As of June 30, 2017) | Change | Remarks |
|--------------------------------------|---------------------------------|---|----------|--|
| Cash and deposits | 566 | 338 | (227) | |
| Others | 84 | 81 | (3) | |
| Total current assets | 650 | 419 | (230) | |
| Tangible fixed assets | 0 | 0 | – | |
| Intangible fixed assets | 0 | 0 | – | |
| Other fixed assets | 44 | 45 | +1 | |
| Total fixed assets | 44 | 45 | +1 | |
| Total Assets | 694 | 465 | (228) | |
| Current liability | 122 | 67 | (55) | |
| Fixed liability | 363 | 26 | (391) | |
| Total Liability | 485 | 93 | (391) | |
| Common stock & Capital surplus | 19,903 | 435 | (19,468) | Reduction due to capital reduction |
| Retained earnings | (19,700) | (63) | +19,637 | Offset the capital reduction and retained earnings |
| Others | 5 | 0 | (5) | |
| Total Net Assets | 208 | 371 | +169 | |
| Total Liabilities & Net Assets | 694 | 465 | (228) | |

Cash Flows for First Six Months of FY2017



| (Millions of Yen, fractions dropped) | 1st half FY2017 | Remarks |
|--|---------------------------------------|-------------------------|
| Cash flows from operating activities | | |
| Net Income before income taxes | 34 | |
| Subsidy income | (336) | UMN-0501 subsidy income |
| Other | (25) | |
| Subtotal | (327) | |
| Income taxes paid and other | (2) | |
| Net cash provided by (used in) operating activities | (330) | |
| Net cash provided by (used in) investing Activities | (0) | |
| Net cash provided by (used in) financing Activities | 102 | Exercise of #20 Warrant |
| Net increase (decrease) in cash and cash equivalents | (227) | |
| Cash and cash equivalents at beginning of the period | 566 | |
| Cash and cash equivalents at end of the period | 338 | |



This material includes forward-looking statements based on assumptions and beliefs in light of the information currently available to management and subject to significant risks and uncertainties.

Actual financial results may differ materially depending on a number of factors including adverse economic conditions, currency exchange rate fluctuations, adverse legislative and regulatory developments, delays in new product launch, pricing and product initiatives of competitors, the inability of the company to market existing and new pipelines effectively, interruptions in production, infringements of the company's intellectual property rights and the adverse outcome of material litigation.

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