## Financial Results Ended March 2012

# **Status of R&D Pipeline**

**♦ Progress and initiatives in fiscal 2012** 

May 10, 2012 Keiji Hirai Director, KYORIN Holdings, Inc. Representative Director, President and Chief Executive officer KYORIN Pharmaceutical Co., Ltd.



# Long-Term Vision HOPE 100



To be a drug manufacturer that is trusted by patients and medical professionals, and is recognized for its presence in society.

-Establish a strong presence in specialized fields -

【 specialized fields 】 ◆ FC domain : respiratory, otolaryngology, urology

Priority Fields : IBD(inflammatory bowel disorder)



- Enhance and strengthen the product portfolio and R&D pipeline
- ◆ Proprietary Drug Discovery: Fundamental research domains (inflammation/infectious diseases/immunology) ⇒ Leverage open innovation
- ◆In-licensed Products: Actively explore in-licensing in specified
- **♦LCM**: New formulations, direction for usage and dosages for mainstay products; drug cultivation research

# Drug Development Pipeline: Progress in FY2011 (In-House) Kyorin



	Product & development code	Ph I	Ph II	PhⅢ	application	Approval/ Launch
Respiratory	KRP-108			PhⅢcompleted		! ! ! !
Respiratory	KRP-AB1102		Entering Ph II		 	
Urological	Uritos OD tablet		 	 	1 	On market in 4/2011
Otolaryngological	KRP-209		Entering Ph II		 	
	KRP-AM1977X	Ph I completed	<u>-</u>	Information in	the dotted box are change	es in FY2011
Infections	KRP-AM1977Y	Preparing for Ph I	*Info		re changes since November!	
	Pentasa(UC) Once a day				applicaion	
	Pentasa(UC) suppository			Ph皿completed		
Other	KRP-203	Ph I completed				
	KRP-110	discontinuation			 	
	AS-3201		Cancelled co-development			
	KRP-104		abeyance		; 	·

# Drug Development Pipeline: Progress in FY2012 (In-House) Kyorin



	Product & development code	Ph I	Ph II	PhⅢ	application	Approval/ Launch
	KRP-108				application	
Respiratory	KRP-AB1102		PhⅡ	Entering PhⅢ	<b>&gt;</b>	
	KRP-AB1102F		Entering Ph II	•		
Urological		Activ	e In-Licensing a	nd Joint Resea	rch	
Otolaryngological	KRP-209		Ph II			
Infections	KRP-AM1977X	臨床薬理試験(F	Ph I )			
	KRP-AM1977Y	Entering Ph I				
	Pentasa(UC) Once a day					Approval
IBD	Pentasa(UC) suppository				application	
	KRP-203		Entering Ph II			

# Anti-asthmatic KRP-108: Status of Development Kyorin (🔾)



#### ■Status of Development

OApplication: Aim to file application for approval in FY2012

OClinical trials: Phase III (Completed in Mar. 2012)

#### **TOPICS**

**April 20, 2012** 

The Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) recommended *flutiform*® for commercial sale.

◆Study Design: A single-blinded comparative study with an active comparator

Target disease: Adult bronchial asthma

Treatment duration: 8 weeks Active comparator: Fluticasone

**Dosage regimen:** Inhaled by twice –a-day dosing (two actuations per dose)

◆Study Design: A non-blinded, non-comparative open study

Target disease: Adult bronchial asthma

Treatment duration: 52 weeks

**Dosage regimen:** Inhaled by twice-a-day dosing (two or four actuations per dose)

## Favorable results seen in all major evaluation categories

### Pentasa: Status of Development for New Dosage Form



- ■Status of Development 【New Dosage Form】 (Suppository)
- OApplication: Aim to file application for approval in FY2012
- OClinical trials: Phase III (Completed in Feb. 2012)
  - Study Design: A randomized, controlled, parallel comparative study

Target disease: Ulcerative colitis in active phase

Comparator: Inactive placebo

Dosage regimen: Once a day (rectal insertion)

Efficacy: Substantively different from placebos, with high remission induction rate shown. (p=0.0000)

Safety: Product retains a high degree of safety.

## **COPD Treatment Agent: KRP-AB1102**



#### **■KRP-AB1102**

Action: Long-acting muscarine M3 antagonist (LAMA)

**Active ingredient: Aclidinium Bromide** 

Formulation: Dry Powder Inhaler

OClinical trials: Phase II (started in Feb. 2012)

◆Study Design: A randomized, Duoble-Blind, Placebo controlled, Parallel-group Comparison Study

Target disease : COPD

**Treatment duration**: 4 week treatment **Active comparator**: Inactive placebo

Dosage regimen: Inhaled by twice-a-day dosing

#### **TOPICS**

February 24, 2012

The Pulmonary-Allergy Drugs Advisory Committee of the U.S. Food and Drug Administration (FDA) has adopted a recommendation to approve acridinium 400 micrograms (administered twice daily) after verifying efficacy and safety.

■KRP-AB1102F: launched development of combination drug
Fixed dose combination of LAMA and LABA(Long Acting Muscarinic Antagonist)

**◇LAMA**: Aclidinium Bromide

**♦LABA**: Formoterol



## Main R&D Activities -1 (February 3, 2012 Release)



### Ph IIb Application submitted

★Changes from the previous announcement (Feb.3, 2012)

Stage		Compound/ Therapy		O sinin	Fort	0
Japan	Overseas	Code	area/Action	Origin	Features	Comments
Application submitted (11/2011)		Pentasa (tablet)	Ulcerative colitis	Ferring Pharmaceuticals	New dosage regimen for ulcerative colitis in the remission phase (once a day)	
Preparing for application%		Pentasa (suppository)	Ulcerative colitis	Ferring Pharmaceuticals	Consideration of a new dosage form for the active phase of ulcerative colitis (once a day)	•Development of a new dosage form •PhⅢ completed(2/2012)※
Preparing for application%	(US) SkyePharma : Application submitted (3/2009) (Europe) Mundipharma : Application submitted (3/2010)	KRP-108 (Inhalant)	Anti- asthmatic	SkyePharma PLC	An ICS/LABA combination product, which offers better compliance and convenience to the patients	License agreement with SkyePharma (4/2008) Domestic Ph II completed (4/2010) PhⅢcompleted(3/2012)※
Ph II (2/2008)	Ph II (9/2007)	KRP-104	Anti-diabetes agent	In-house	A DPPIV inhibitor to reduce blood glucose through suppression of the degradation of insulin-releasing hormone. Diabetic therapy with fewer side effects is expected than existing treatments.	*Overseas Ph II b completed (3/2011) *Domestic Ph II b completed (3/2010)

# Main R&D Activities -2 (February 3, 2012 Release) Kyorin



#### **POC Project (Pre-clinical ~ Ph II)**

#### ★Changes from the previous announcement (Feb.3, 2012)

Stage		Compound/	Therapy	0 :: :: :	First	C
Japan	Overseas	Code	area/Action	Origin	Features	Comments
Ph I (12/2010)	Ph II (POC) (12/2010) (Novartis)	KRP-203	Transplantation, autoimmune diseases,and IBD	In-house	An immunosuppressant with a novel mechanism called an S1P-agonist. It may have a better safety profile than previous ones as well as an excellent effect under concomitant use with other types of immunomodulator.	License agreement with Novartis (2/2006) New license agreement IBD (11/2010)
Ph II (8/2011)	PhIII Merz	KRP-209	Tinnitus	Merz	KRP-209 (Neramexane) is expected to improve the patients' annoyance and difficulties in their life caused by tinnitus, mainly through its two pharmacological properties: 1) NMDA antagonistic activity and 2) Nicotinic acetylcholine antagonistic activity	License agreement with Merz (11/2009) Merz:Ph I clinical trial of Japanese patients in US completed (3/2010)
Ph II ** (2/2012)	(Europe) Almirall : Preparing for application (US) Forest Pharmaceuticals : Preparing for application	KRP-AB1102 (Inhaled drug)	Chronic Obstructive Pulmonary Disease (COPD)	Almirall	- New Chemical Entity: Aclidinium Bromide - Long Acting Muscarinic Agonist (LAMA) - Twice Daily administration -Onset of Action on the first day Genuair® 1) Designed with a feedback system, which through a 'colored control window' and an audible click helps confirm that the patient has inhaled correctly 2) Counter for remaining doses 3) Safety features such as an anti-double-dosing mechanism and an end-of-dose lock-out system to prevent use of an empty inhaler	License agreement with Almirall (2/2011)
Preparing for clinical trials **	(Europe & US) Almirall: Ph III (US) Forest Laboratories : Ph III	KRP-AB1102F (Fixed dose combination inhaled drug)	Chronic Obstructive Pulmonary Disease (COPD)	Almirall	Combination of aclidinium bromide with the long acting beta agonist formoterol: This combination is aimed at providing higher efficacy than each component alone, as well as the improved convenience of having the two products in the same easy to use inhalation device. This is currently in phase III clinical development.	

# Main R&D Activities -2 (February 3, 2012 Release) Kyorin



#### **POC Project (Pre-clinical ~ Ph II)**

#### \*Changes from the previous announcement (Feb.3, 2012)

Stage		Compound/	Therapy	0.1.1.	Fort	G
Japan	Overseas	Code	area/Action	Origin	Features	Comments
Ph I *(8/2011)		KRP-AM1977X (Oral agent)	New quinolone synthetic antibacterial agent	In-house	①Superior ability to combat drug-resistant gram- positive bacteria (incl. MRSA) ②Outstanding ADME (oral absorption, tissue	
Ph I preparations		KRP-AM1977Y (Injection)	New quinolone synthetic antibacterial agent	In-house	migration) ③High degree of safety expected since safety hurdles cleared prior to clinical trials	

#### others

- •AIPHAGAN Ophthalmic Solution 0.1%: To be released on May 11,2012 💥
- •Discontinued development of KRP-110 deleted it from the list of R&D activities. 💥



■ These forecast figures are based on information currently available to the Company and may include uncertain factors or risk that affect our future performance.

Accordingly, actual business results may materially differ from the

Accordingly, actual business results may materially differ from the forecasted figures due to various factors in the future.