

For Immediate Release

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Daiichi Sankyo's "R&D Day 2015"

Tokyo, Japan (December 14, 2015) - Daiichi Sankyo Company, Limited (hereafter, Daiichi Sankyo) will hold its "R&D Day 2015" at its Tokyo headquarters at 3pm JST on Monday, December 14, 2015.

Dr. Glenn Gormley, Senior Executive Officer and Global R&D Head, will give a briefing about Daiichi Sankyo research and development activities to media, security analysts, and institutional investors. Topics will include an update on Daiichi Sankyo's late stage innovative product pipeline and its R&D strategies for oncology.

Following the event, a video of "R&D Day 2015" will be available on the Daiichi Sankyo corporate website via the following link:

http://www.daiichisankyo.com/media_investors/investor_relations/ir_calendar/detail/005286.html)

Attachment: presentation material

Passion for Innovation.
Compassion for Patients.™



December 14 2015

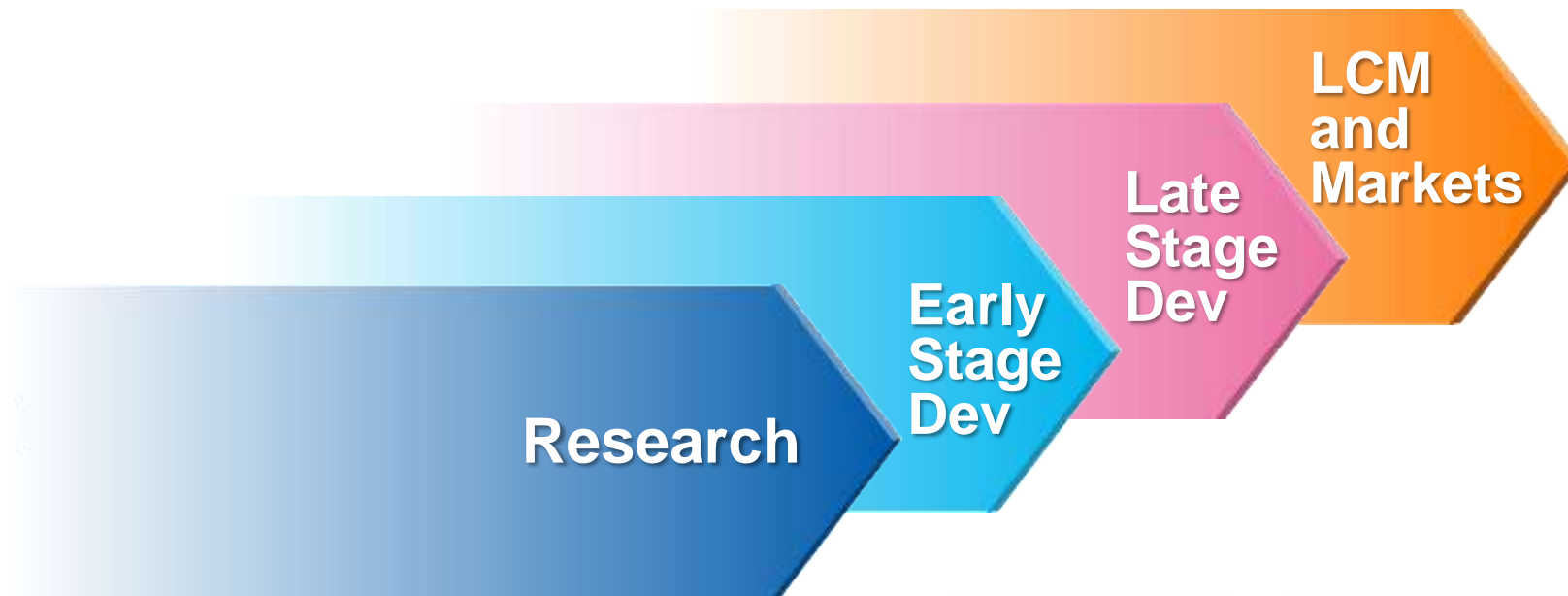
Research and Development at Daiichi Sankyo

Glenn Gormley MD PhD

Senior Executive Officer, Global R&D Head
Daiichi Sankyo Co., Ltd.

- **Pipeline overview**
- **Pipeline update : Thrombosis, Diabetes and Pain**
- **Focus on Oncology**

R&D Focus Therapeutic Areas



Priority Areas for Discovery*

- **Oncology**
- **CV-M**
- **Pain**

Oncology
CV-M
Pain

Thrombosis
Hypertension
Pain

*Discovery: Research and Early Development up to Proof of Concept

Major R&D pipeline

As of October 2015

Therapeutic area

Phase 1

Phase 2

Phase 3

Application

Cardiovascular-Metabolics

- **DS-1040**
(Acute Ischemic stroke / TAFIa inhibitor)
- **DS-8312**
(Hypertriglyceridemia)
- **DS-2330**
(Hyperphosphatemia)
- **DS-9231/TS23**
(Thrombosis / α 2-P1 inactivating antibody)

- **CS-3150 (JP)**
(Hypertension / DM nephropathy / MR antagonist)
- **DS-8500 (JP)**
(Diabetes / GPR119 agonist)

- **Prasugrel (JP)**
(CS-747 / Ischemic stroke / anti-platelet agent)
- **Prasugrel (US)**
(CS-747 / sickle cell disease / anti-platelet agent)

- **Edoxaban (ASCA etc.)**
(DU-176b / AF / oral factor Xa inhibitor)
- **Edoxaban (ASCA etc.)**
(DU-176b / VTE / oral factor Xa inhibitor)

Oncology

- **DS-3032 (US/JP)**
(MDM2 inhibitor)
- **PLX7486 (US)**
(FMS / TRK inhibitor)
- **PLX8394 (US)**
(BRAF inhibitor)
- **DS-6051 (US)**
(NTRK/ROS1 inhibitor)
- **PLX9486 (US)**
(KIT inhibitor)
- **U3-1565 (US/JP)**
(Anti-HB-EGF antibody)
- **DS-8895 (JP)**
(Anti-EPHA2 antibody)
- **DS-8273 (US)**
(Anti-DR5 antibody)
- **DS-5573 (JP)**
(Anti-B7-H3 antibody)
- **DS-8201 (JP)**
(Anti-HER2 ADC)

- **Patritumab (US/EU)**
(U3-1287 / anti-HER3 antibody)
- **Pexidartinib (US)**
(PLX3397 / FMS/KIT/FLT3-ITD inhibitor)

- **Tivantinib (US/EU)**
(ARQ 197 / HCC / MET inhibitor)
- **Denosumab (JP)**
(AMG 162 / breast cancer adjuvant / anti-RANKL antibody)
- **Nimotuzumab (JP)**
(DE-766 / gastric cancer / anti-EGFR antibody)
- **Vemurafenib (US/EU)**
(PLX4032 / melanoma adjuvant / BRAF inhibitor)
- **Quizartinib (US/EU)**
(AC220 / AML / FLT3-ITD inhibitor)
- **Pexidartinib (US/EU)**
(PLX3397/TGCT / FMS/KIT/FLT3-ITD inhibitor)

Others

- **DS-1093**
(Anemia of chronic kidney disease / HIF-PH inhibitor)
- **DS-3801**
(Chronic obstipation / GPR38 agonist)
- **DS-1971**
(Chronic pain)
- **DS-1501**
(Osteoporosis / Anti-Siglec-15 antibody)
- **DS-7080**
(AMD / Angiogenesis inhibitor)
- **VN-0102/JVC-001 (JP)**
(MMR vaccine)

- **SUN13837 (US/EU)**
(Spinal cord injury / modulator of bFGF signaling system)
- **Laninamivir (US/EU)**
(CS-8958 / anti-influenza / out-licensing with Biota)

- **Mirogabalin (US/EU)**
(DS-5565 / fibromyalgia / α 2 δ ligand)
- **Mirogabalin (JP/Asia)**
(DS-5565 / DPNP/ α 2 δ ligand)
- **Mirogabalin (JP/Asia)**
(DS-5565 / PHN / α 2 δ ligand)
- **Denosumab (JP)**
(AMG 162 / rheumatoid arthritis / anti-RANKL antibody)
- **Hydromorphone (JP)**
(DS-7113 / cancer pain / opioid μ -receptor regulator)
- **CHS-0214 (JP)**
(Etanercept BS / rheumatoid arthritis / TNF α inhibitor)
- **CL-108 (US)**
(Acute pain / opioid μ -receptor regulator)
- **VN-0105 (JP)**
(DPT-IPV/Hib vaccine)
- **VN-0107/MEDI3250 (JP)**
(Nasal spray flu vaccine vaccine)

- **Intradermal Seasonal Influenza Vaccine (JP)**
(VN-100 / prefilled i.d. vaccine for seasonal flu)
- **VN-101 (JP)**
(Cell-culture H5N1 Influenza vaccine)

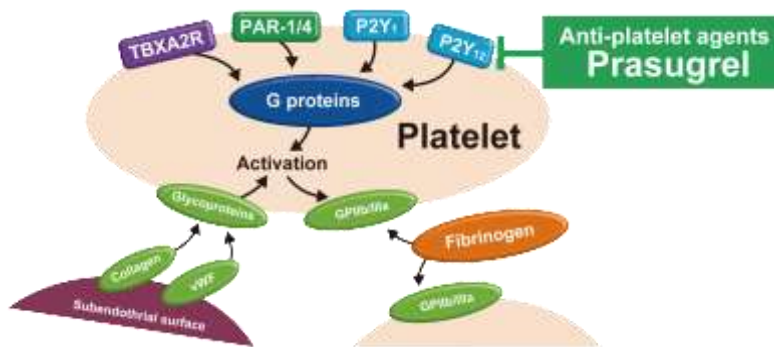
Targets for Approval and Launch

	FY2015	FY2016	FY2017	FY2018	≥ FY2019
Japan	Cravit[®] Injection	Hydromorphone Cancer Pain	Pralia[®] RA	Mirogabalin DPNP & PHN	Oncology Nimotuzumab Patritumab Pexidartinib Quizartinib (JPN) Zelboraf [®] (LCM) Ranmark [®] (BC adj)
US	Cravit[®] Tuberculosis	Lacosamide Epilepsy	Artist[®] Chronic AF	Effient[®] CVA	CV-M CS-3150 (MRA) DS-8500 (GPR119) Effient [®] (LCM) Lixiana [®] (LCM)
Western Europe	Lixiana[®] AF	CL108 Acute Pain & OINV	Effient[®] Sickle Cell	Tivantinib HCC	Pain Mirogabalin
Other Regions	Lixiana[®] VTE			Quizartinib AML	Other
				Tivantinib HCC	
				Quizartinib AML	
				Lixiana[®] AF&VTE (China·LTAM etc.)	

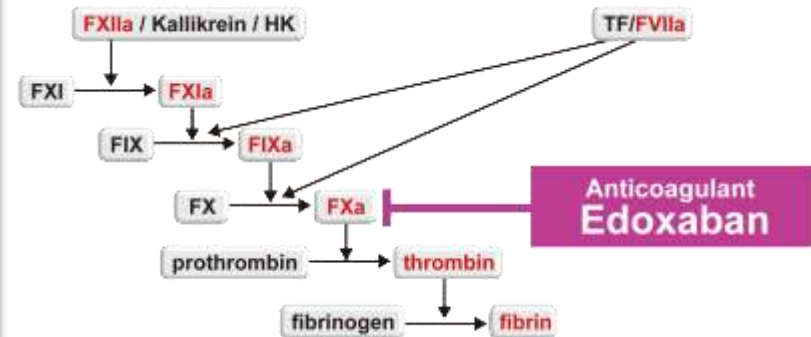
- Pipeline overview
- **Pipeline update : Thrombosis, Diabetes and Pain**
- Focus on Oncology

Medical Management of Thrombosis

Platelet aggregation



Blood coagulation



Platelet aggregation

Fibrin

Thrombus

TAFIa inhibitor
(DS-1040)
Fibrinolysis
enhancer

TAFIa
Thrombin-activatable
fibrinolysis inhibitor

Plasmin

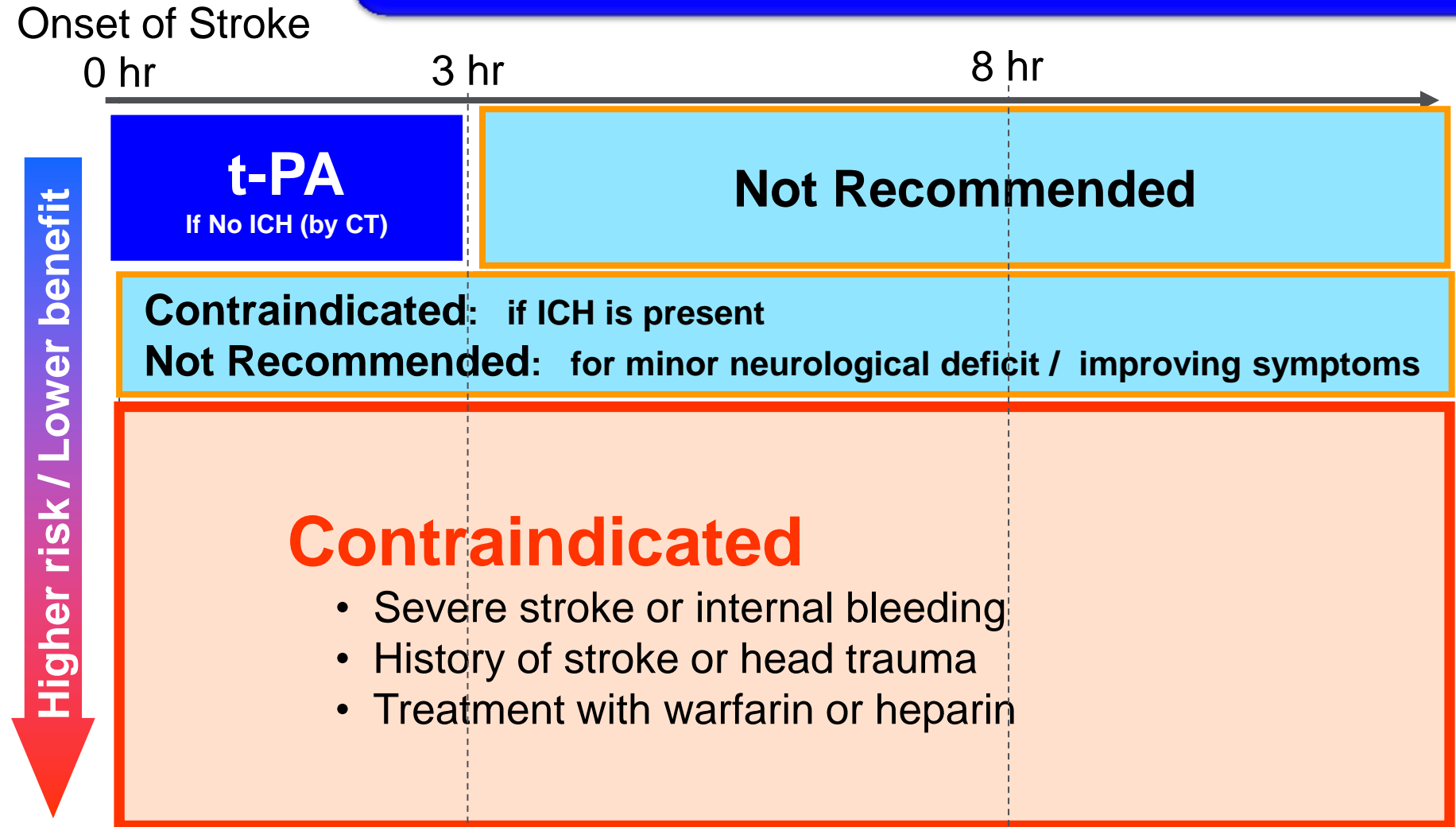
α2-PI
(α2-plasmin
inhibitor)

α2-PI inhibitor
(DS-9231)
Fibrinolysis
enhancer

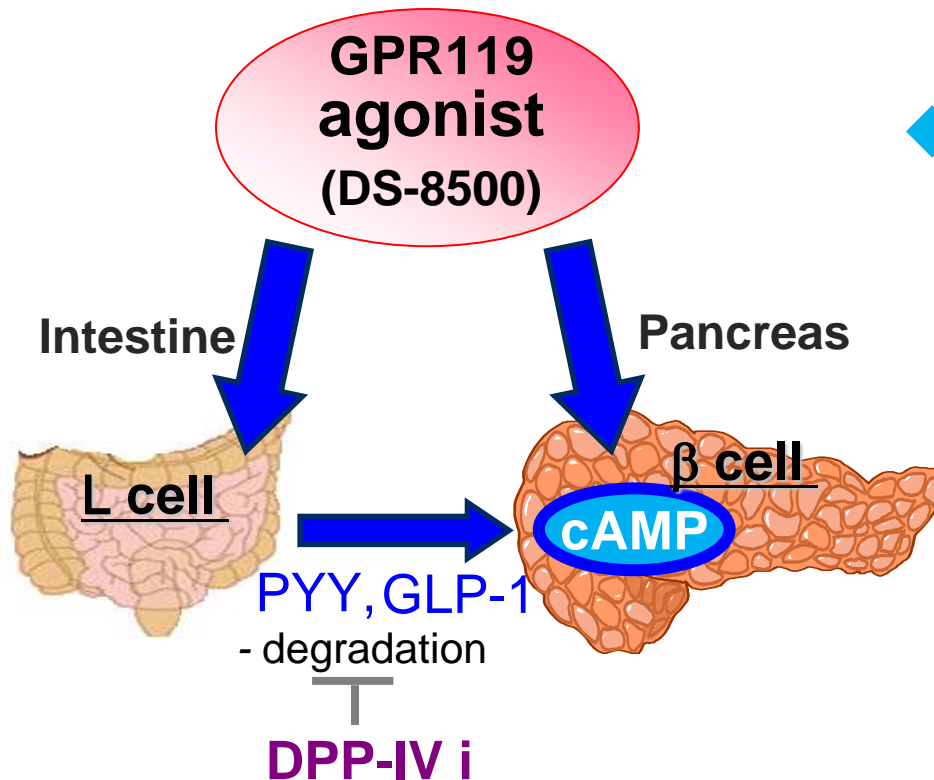
Fibrinolysis

Opportunity for a new fibrinolysis enhancer

Indicted Use of tPA in the treatment of Acute Ischemic Stroke



Global sales for alteplase: \$1.1 B in 2014 (Source: EvaluatePharma)



◆ Mechanism of Action

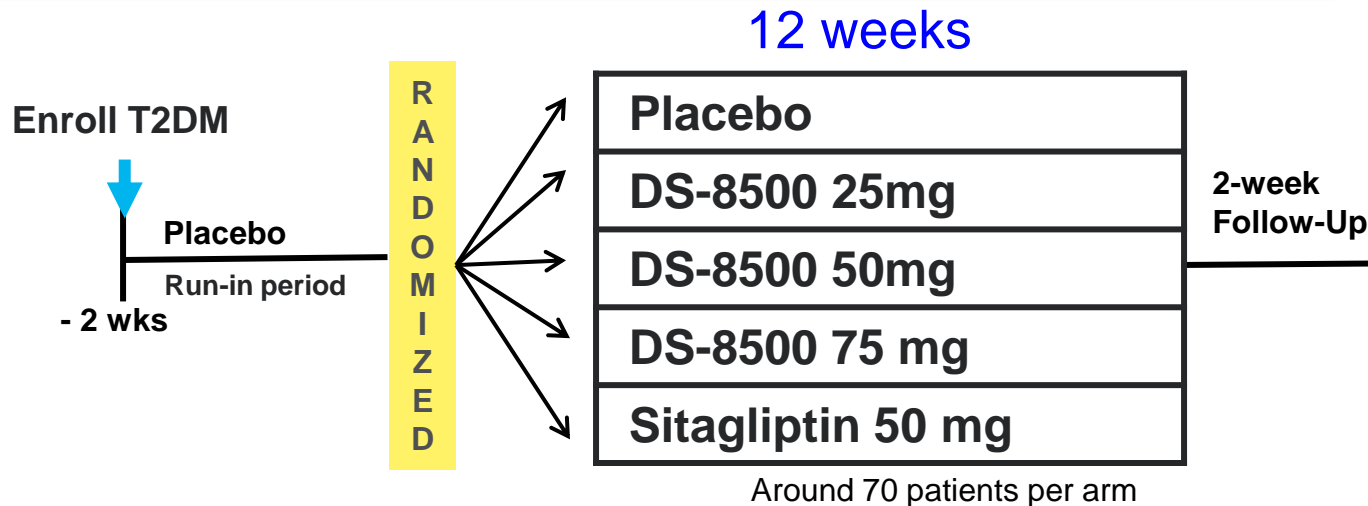
- Amplify glucose-stimulated insulin secretion
- Improve β -cell function
- Stimulate GLP-1 secretion

DPP-IV i : Dipeptidyl Peptidase-4 inhibitor
GLP-1: Glucagon-Like Peptide-1
PYY: Peptide YY

Results of Phase 2a study are anticipated to be published in 1H 2016

DS-8500 : GPR119 agonist

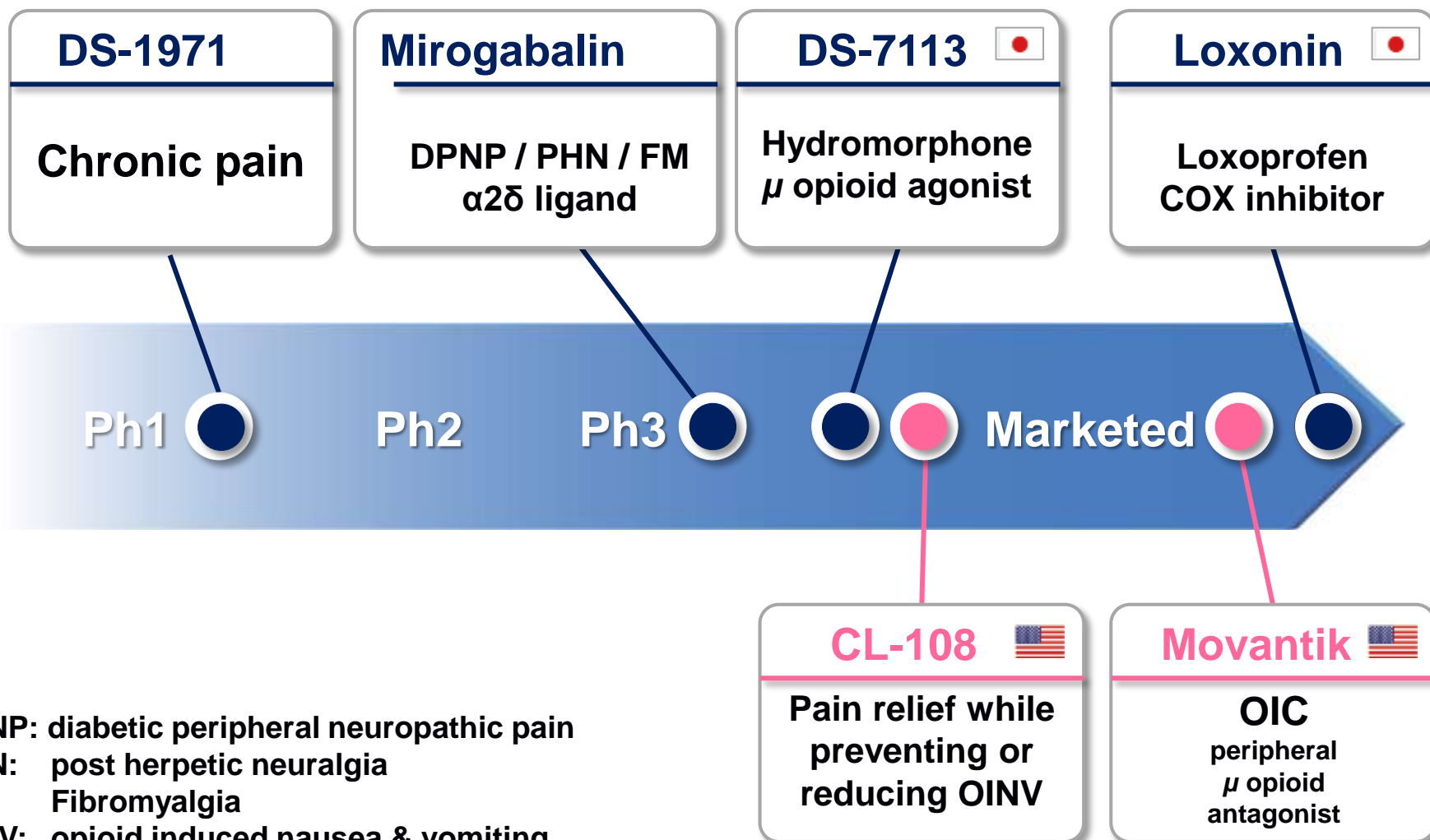
Phase 2b: 12-week study has just started



Subject	T2DM patients
Region	Japan
Study endpoints	Primary endpoint: HbA1c Safety: adverse events, hypoglycemia
Study timeline	Nov 2015 (FPI)~ 4Q FY2016 (TLR anticipated)

FPI: First Patient In
TLR: Top Line Results

Pipeline for the Treatment of Pain



DPNP: diabetic peripheral neuropathic pain
PHN: post herpetic neuralgia
FM: Fibromyalgia
OINV: opioid induced nausea & vomiting
OIC: opioid induced constipation

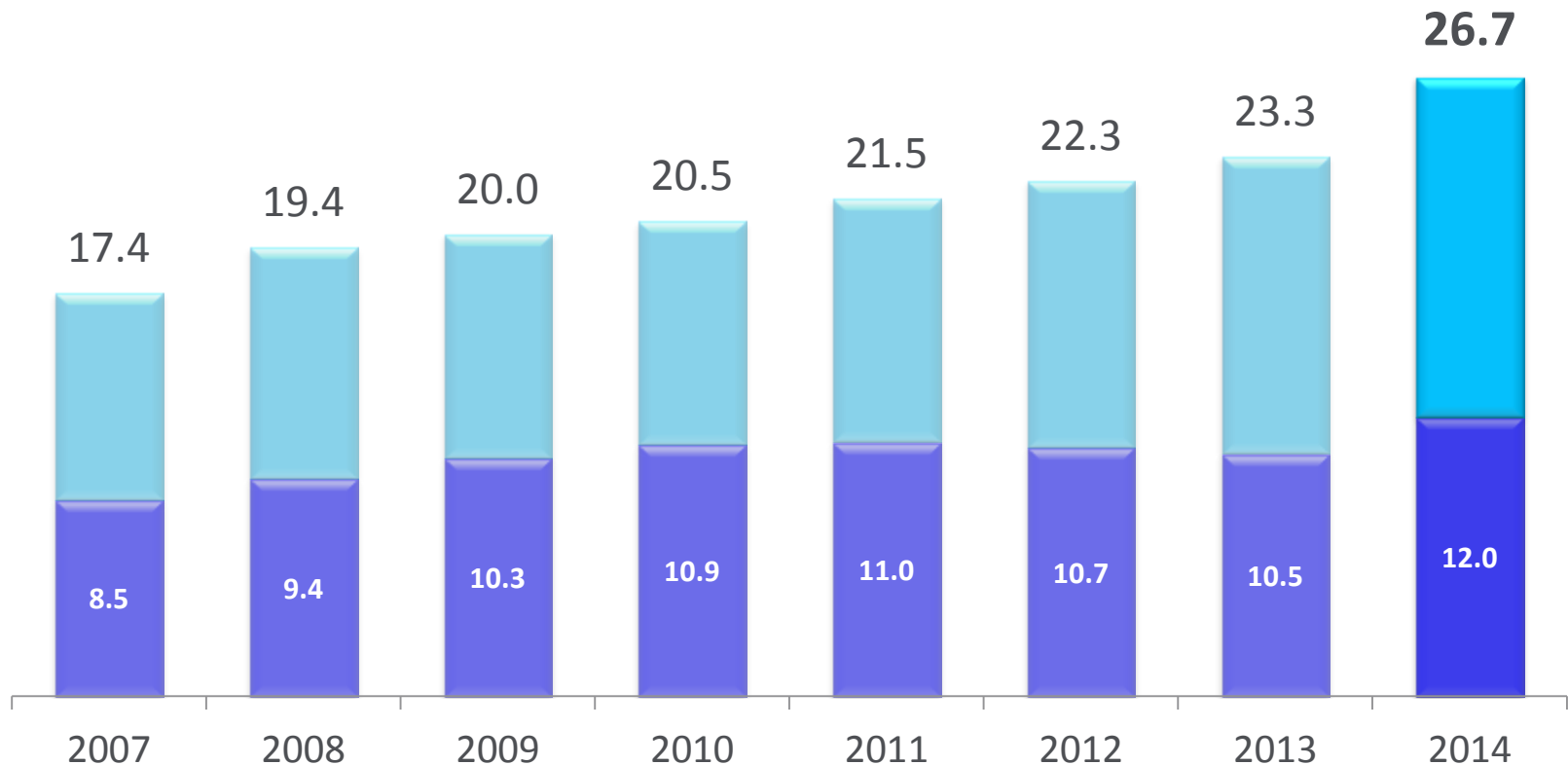
U.S. Pain Market Holds Great Opportunity

Large, Growing Market

U.S. Pain Market Gross Sales (US \$ Billion)

2014: **\$27 Billion**

Others Opioids



Third Phase 3 study recently completed :

- ◆ Double-Blind, Active- and Placebo-Controlled study
- ◆ Population: 550 patients, with pain after bunionectomy surgery
- ◆ Results: co-primary endpoints were met:
 - ◆ Pain relief and prevention or reduction of OINV* (both $p < 0.001$)
- ◆ Results are planned to be published in 2016

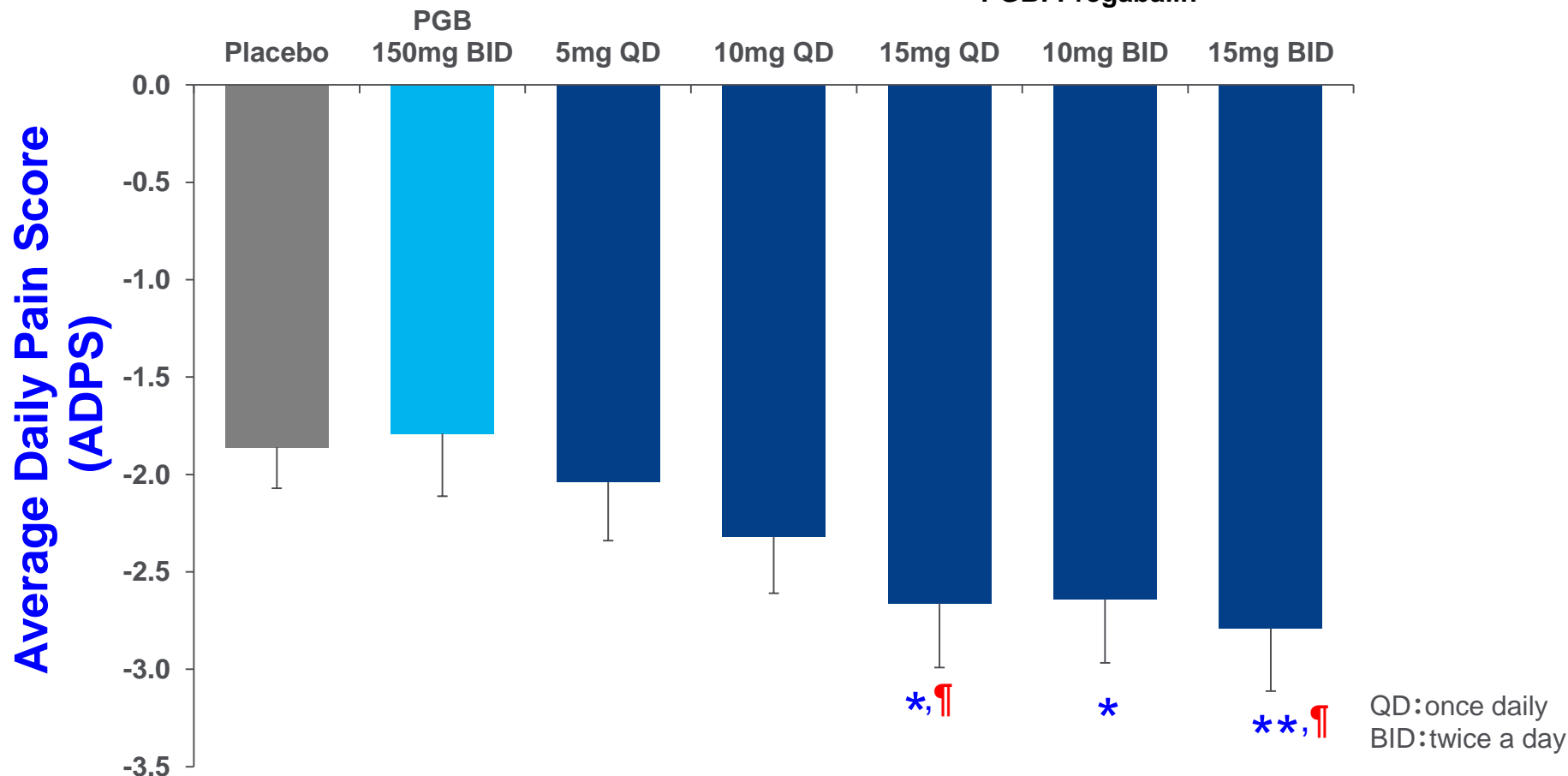
OINV: opioid-induced nausea and vomiting

NDA submission: anticipated 4Q FY2015

Mirogabalin: Phase 2, DB Study in DPNP

Primary Endpoint at Week 5

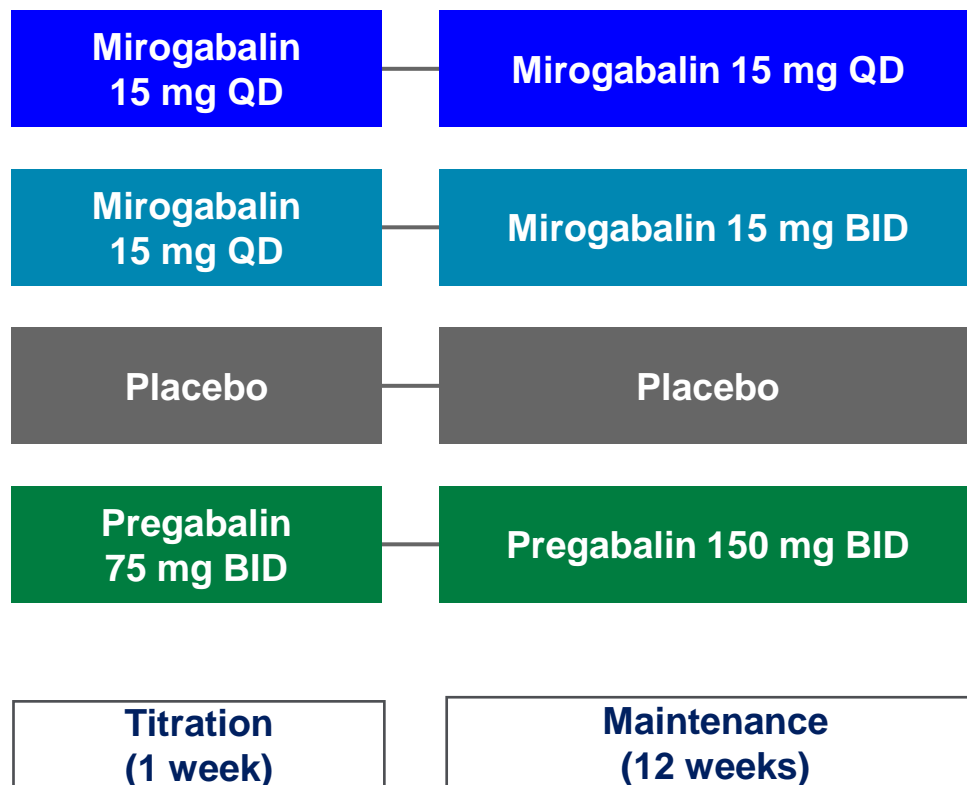
DPNP: Diabetic Peripheral Neuropathic Pain
PGB: Pregabalin



- 3 doses reached statistical significance versus placebo * : $p < 0.05$, ** : $p < 0.01$
- 2 doses reached statistical significance versus pregabalin ¶ : $p < 0.05$

West: Mirogabalin Phase 3 FM Study Design

Double-Blind Treatment (300 patients per arm)



- **Primary outcome: change from baseline in the ADPS at week 13**

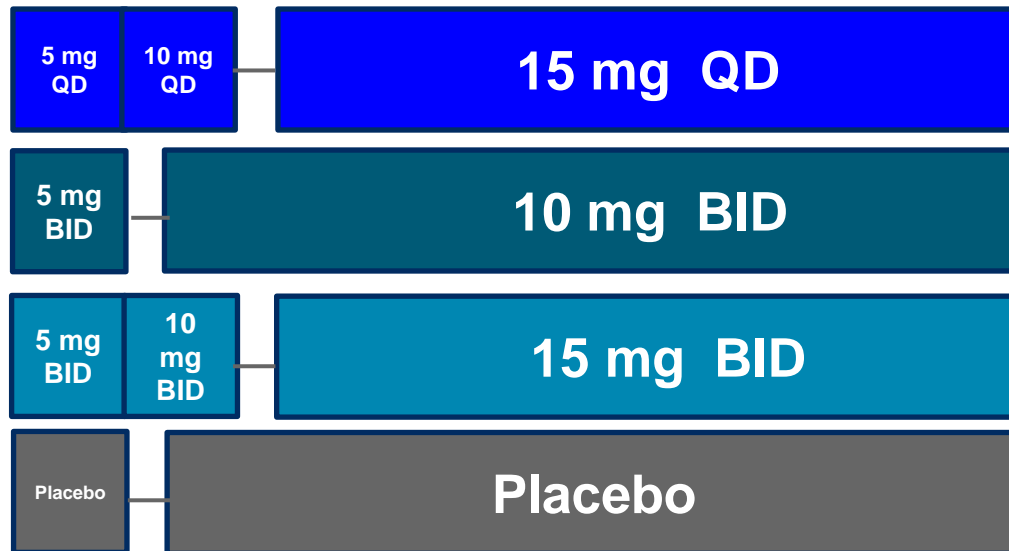
ADPS: Average Daily Pain Score
FM: Fibromyalgia

Top Line Results anticipated in 1H 2017

Asia: Peripheral Neuropathic Pain (PNP) Phase 3 Study Design

Double-Blind Treatment

(150 patients per Mirogabalin arm, 300 patients in placebo arm)



- **Primary outcome: change from baseline in the ADPS at week 14**



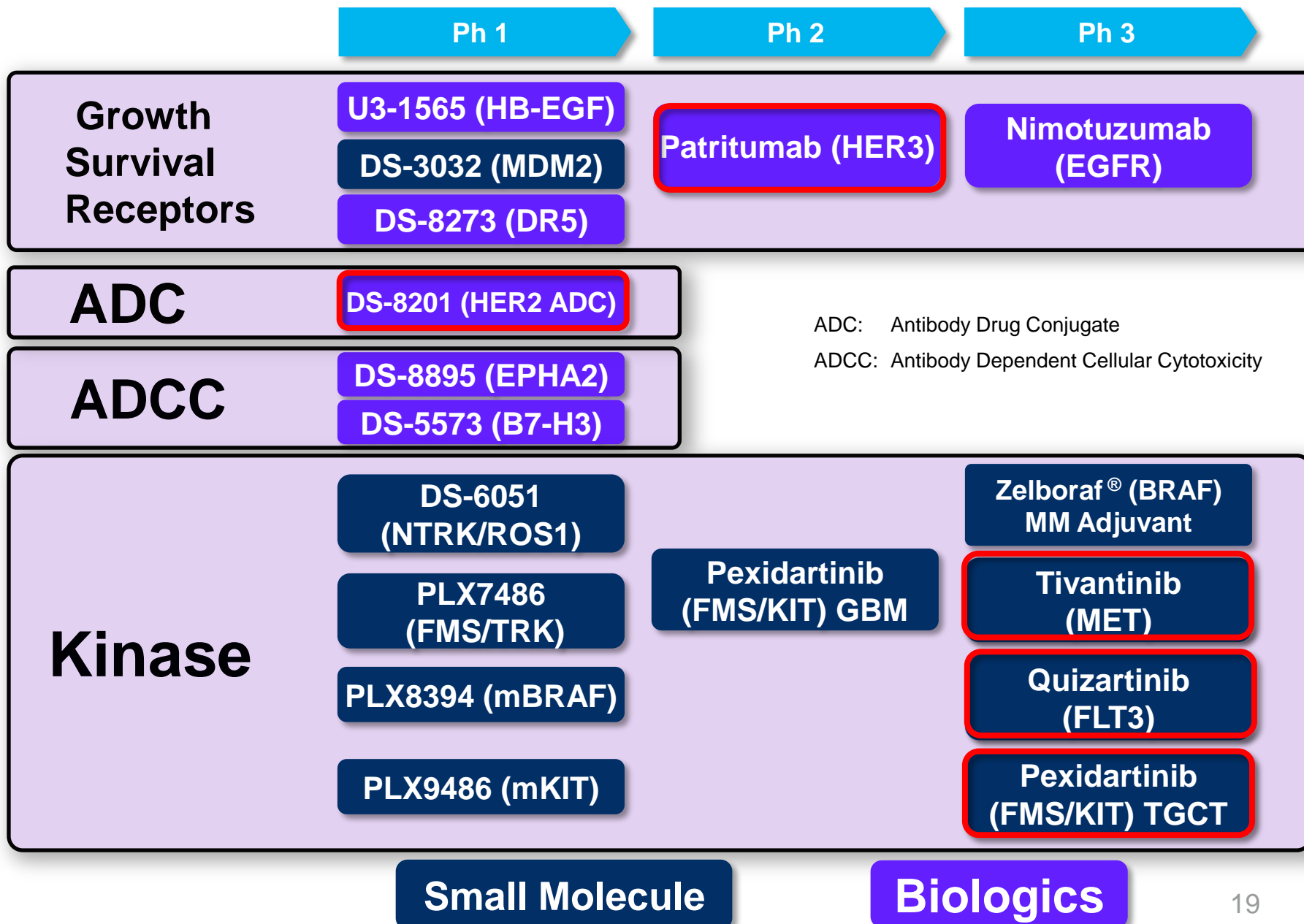
ADPS: Average Daily Pain Score
PNP : DPNP+PHN
DPNP: Diabetic Peripheral Neuropathic Pain
PHN: Post Herpetic Neuralgia

Top Line Results anticipated in 1H 2017

- Pipeline overview
- Pipeline update: Thrombosis, Diabetes and Pain
- **Focus on Oncology**

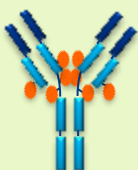
- **Focus on FIC opportunities**
- **Develop Personalized medicine based therapies**
- **Maintain strong academic partnerships**
 - **National Cancer Center of Japan**
 - **UCSF**
 - **Max Planck**
- **Partner with innovative biotech companies**
 - **ArQule**
- **Strategic acquisitions**
 - **Plexxikon**
 - **Ambit**

Oncology Clinical Pipeline



Innovative anti-HER2 antibody drug conjugate (ADC)

● DS-8201 compared to T-DM1



	DS-8201	T-DM1
Antibody	HER2 Ab	Trastuzumab
Conjugated toxin	Topoisomerase I inhibitor	Tubulin inhibitor
DAR*	7-8	3.5

*DAR: Drug to Antibody Ratio

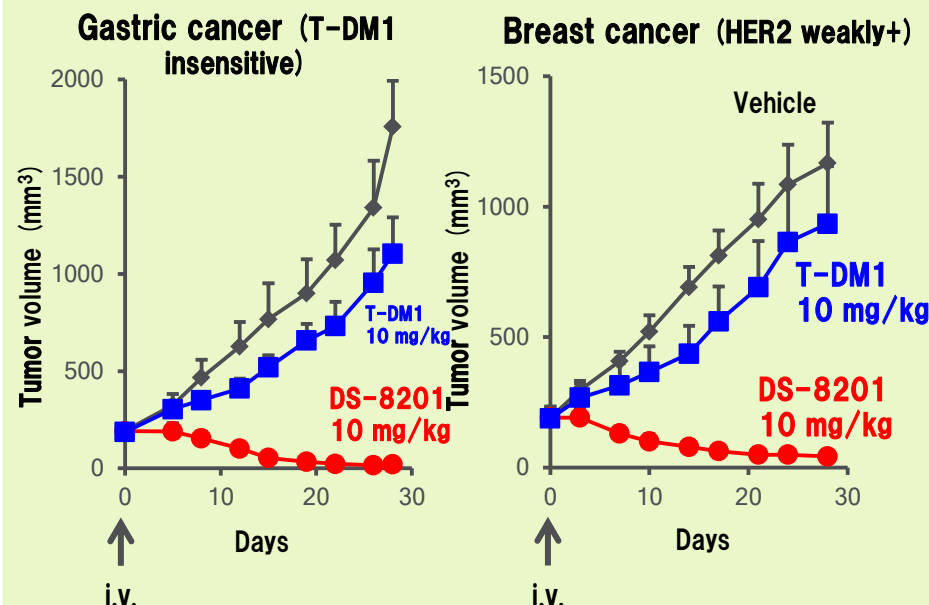
● Differentiation from T-DM1

- Different conjugated toxin
- Original ADC technology
- Higher drug to antibody ratio

● Mechanism of action

- Ab binds HER2 receptor and is internalized
- Conjugated toxin is released inside cell
- Toxin causes targeted cell death

● Patient-derived tumor xenograft models



DS-8201 demonstrated potent anti-tumor efficacy against:
 T-DM1 insensitive model
 HER2 weakly-positive model

Immune-oncology

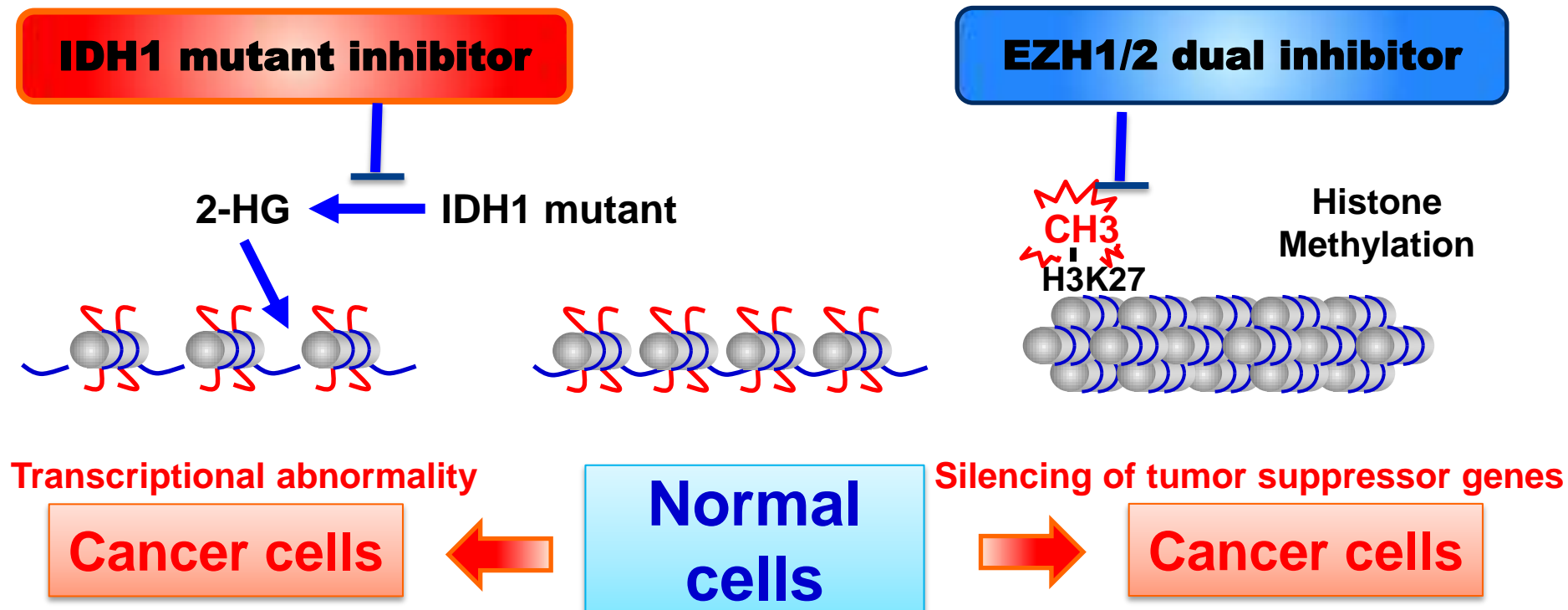
- Immune checkpoint inhibitors
- Cell therapy

Epigenetics

- IDH1 mutant inhibitor
- EZH 1/2 inhibitor

IDH1 mutant inhibitor and EZH1/2 dual inhibitor

- IDH1 mutant inhibitor decreases 2-hydroxyglutarate (2-HG) and improve transcriptional abnormality
- EZH 1/2 inhibitor decreases histone methylation and increases transcription of tumor suppressor genes
- Clinical studies of both inhibitors planned for 2016





Four novel compounds targeting unique pathways in Phase 2/3 registration trials

Quizartinib (Ph3)

Acute myeloid leukemia (AML)

Pexidartinib (Ph3)

Tenosynovial giant cell tumor (TGCT)

Tivantinib (Ph3)

Hepatocellular carcinoma (HCC)
in partnership with ArQule

Patritumab (Ph2/3)

Non-small cell lung cancer (NSCLC)

Quizartinib

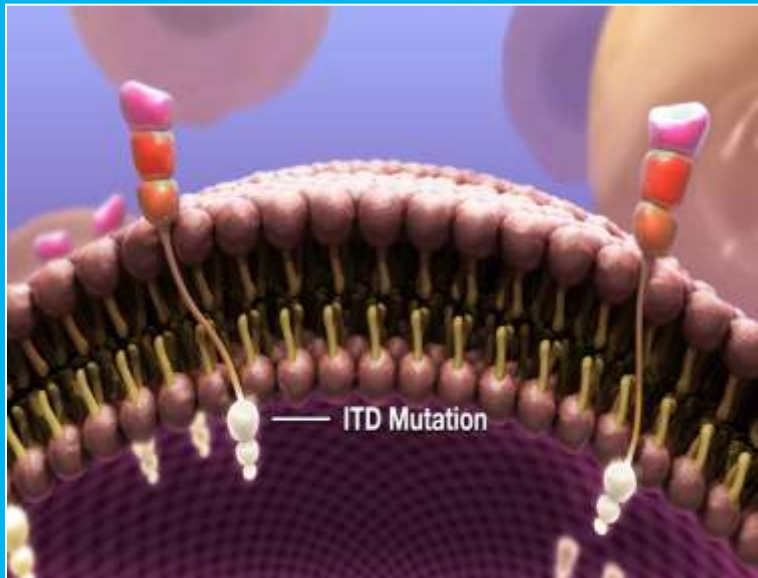
Investigational FLT3 Inhibitor

Acute Myeloid Leukemia (AML)

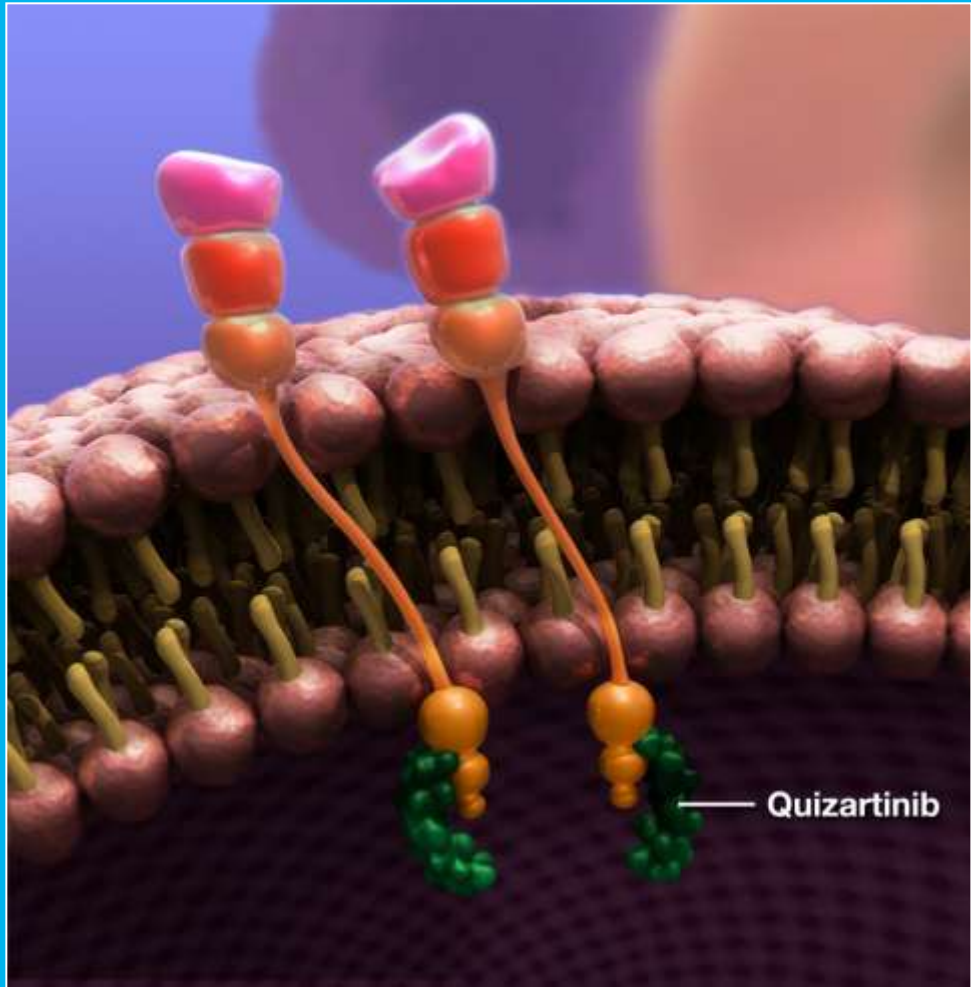
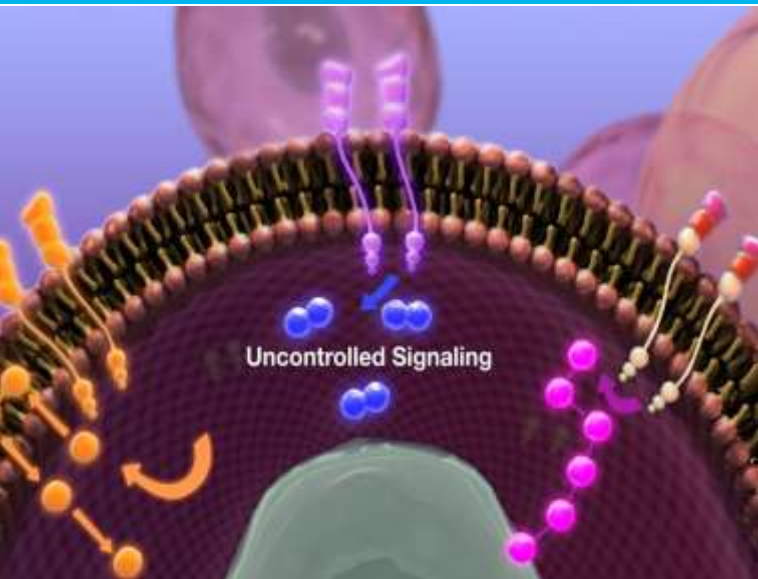


Granted Orphan Drug Designation by the FDA and EMA
Granted Fast Track Status by the FDA

Quizartinib: a Selective Inhibitor of ITD mutated FLT3 receptor



Reference:
Levis M, et al. Leukemia. 2003;17:1738-52.



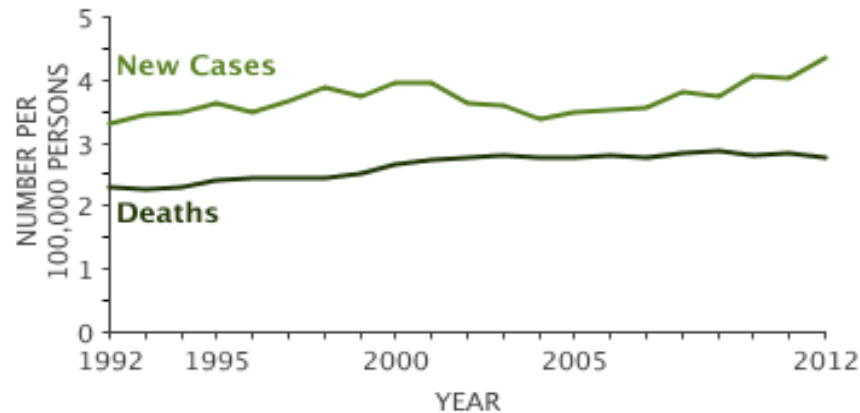
References:
Zarrinkar PP, et al. Blood. 2009;114(14):2984-92.
Sexauer A, et al. Blood. 2012;120(20):4205-14.

Reference:
Levis M, et al. Leukemia. 2003;17:1738-52.

Acute Myeloid Leukemia

◆ Epidemiology in US

Estimated New Cases in 2015	20,830
% of All New Cancer Cases	1.3%
Estimated Deaths in 2015	10,460
% of All Cancer Deaths	1.8%

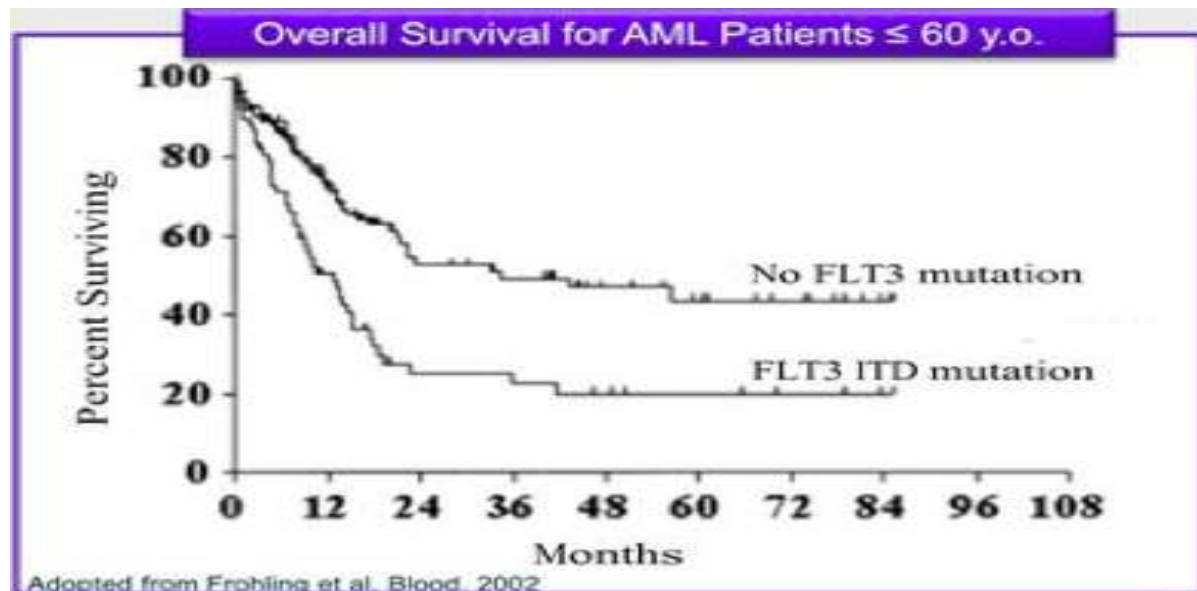


Percent Surviving
5 Years

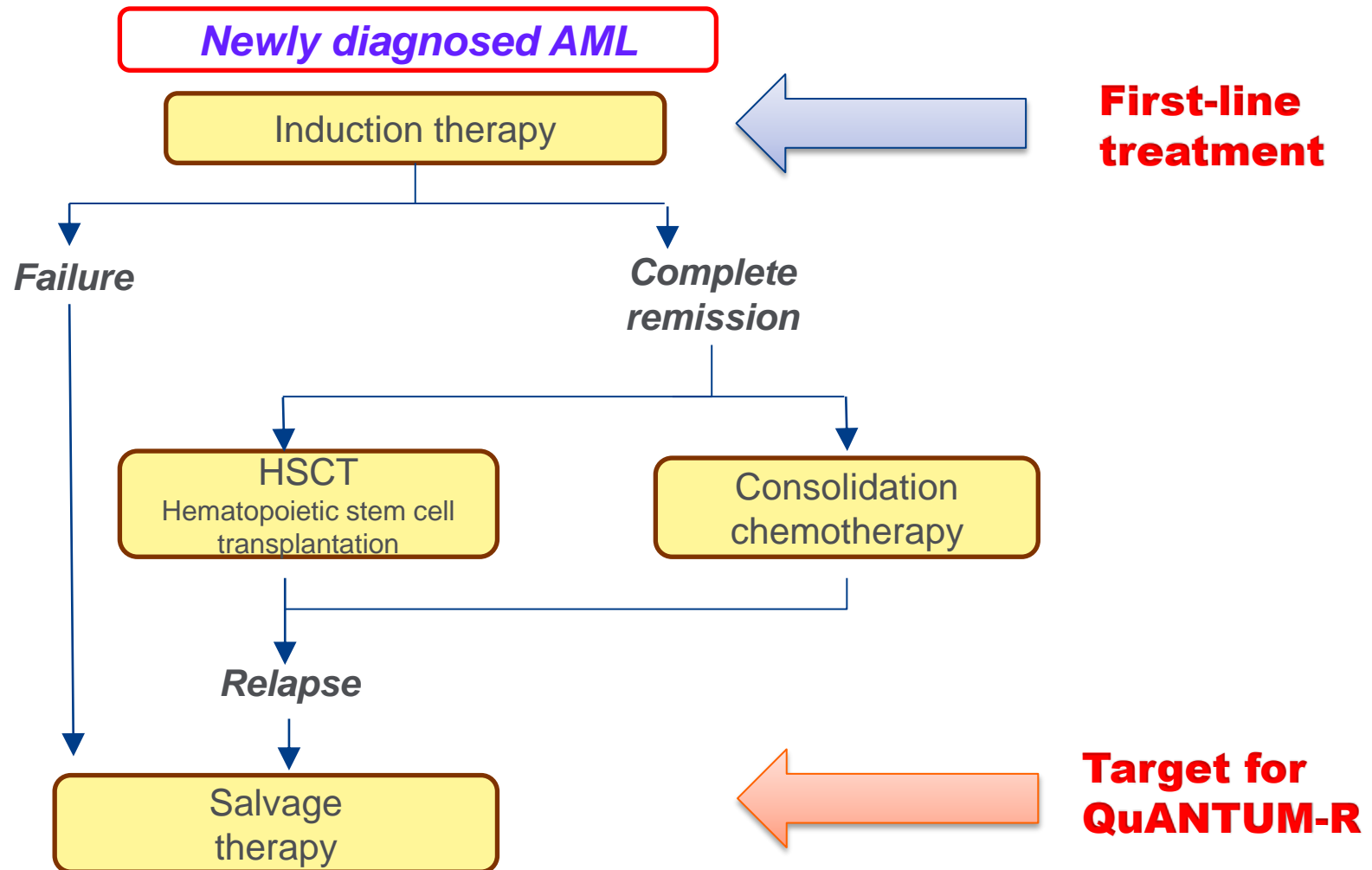
25.9%

2005–2011

FLT3-ITD mutation: 23% of AML
survival rate lower than patients without this mutation

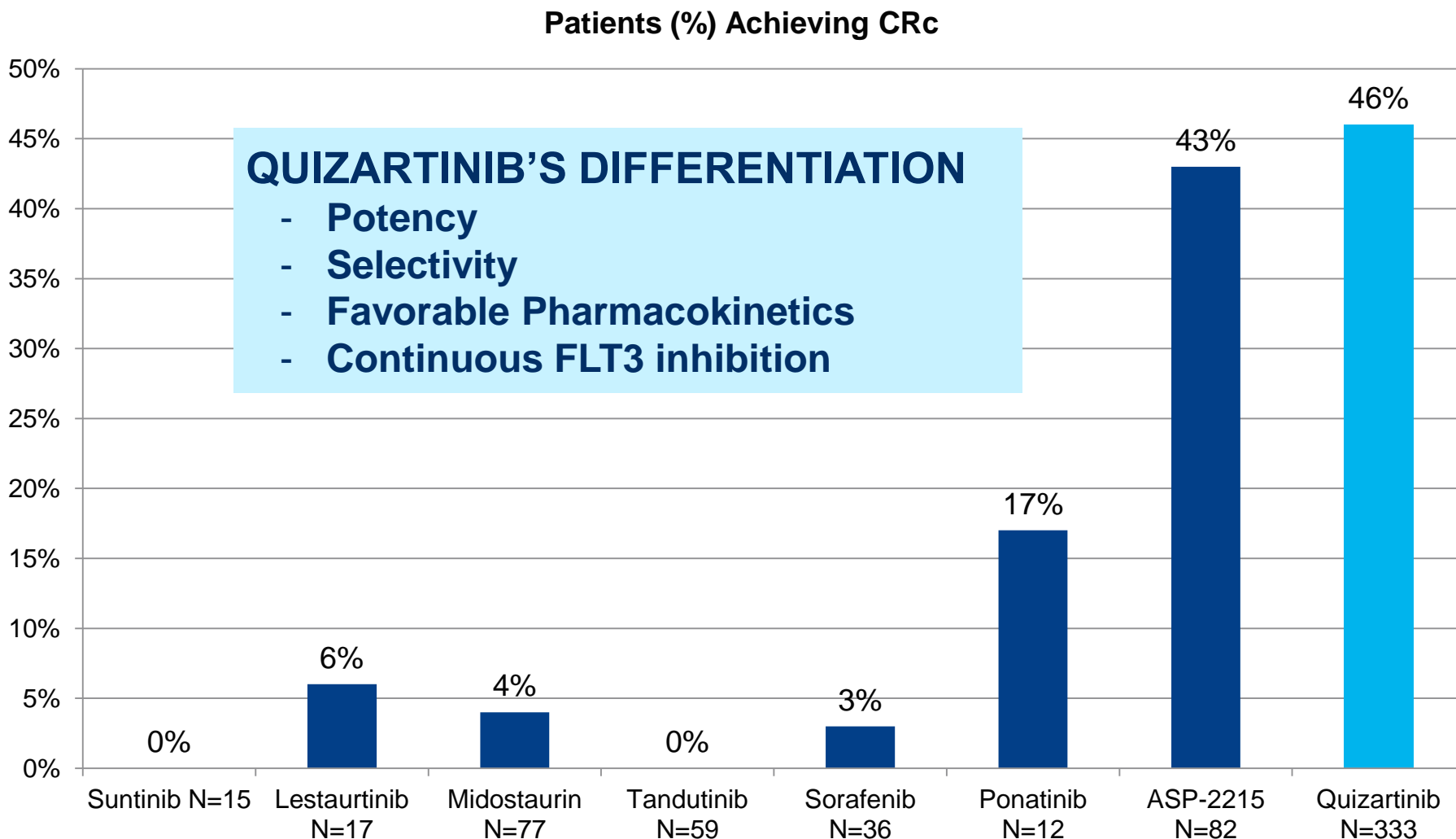


Paradigm for the Treatment of AML

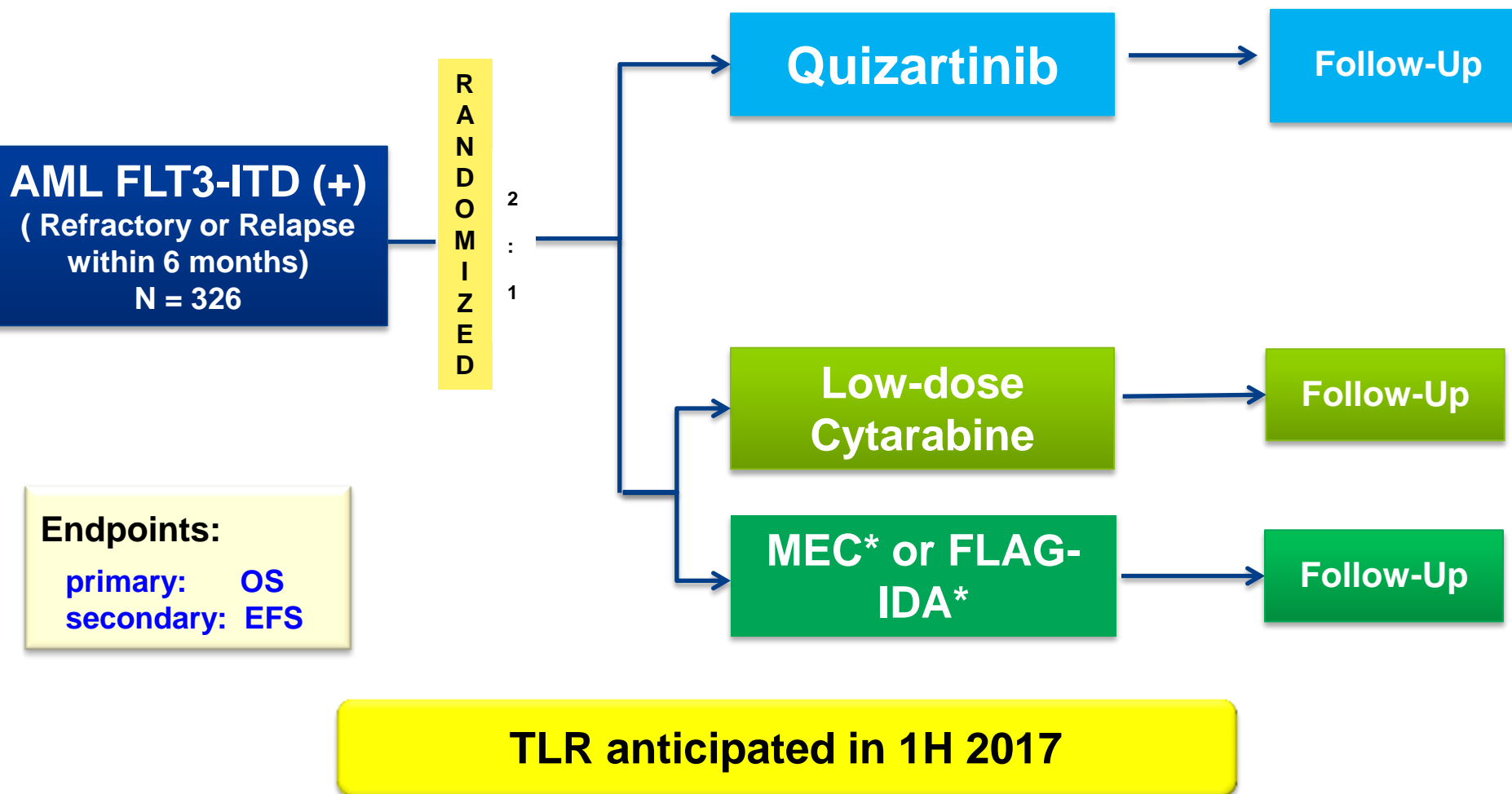


Quizartinib: Effect in FLT3-ITD(+) AML

**Observed Response Rate for specific and non-specific FLT3 Inhibitors
Administered as a Single Agent in FLT3-ITD(+) AML**



Quizartinib: QuANTUM-R Phase 3 Study



MEC: mitoxantrone, etoposide, and intermediate-dose cytarabine

FLAG-IDA: fludarabine, cytarabine, and granulocyte colony stimulating factor (G-CSF) with idarubicin

Plans to Maximize Value of Quizartinib

Ongoing program

QuANTUM-R (US, EU, Asia)

NDA

Approval

Planning Phase

JP study

1st line therapy

FY2014

FY2015

FY2016

FY2017

FY2018

FY2019

FY2020 -

Highly Selective Treatment for Relapsed Refractory AML

- Targeted therapy against ITD mutated FLT3 receptor
- Once daily oral dosing
- Well tolerated outpatient treatment
- Overall survival in Phase 2: 6 months

Pexidartinib : PLX3397

Investigational CSF-1R Inhibitor

Tenosynovial Giant Cell Tumor (TGCT)

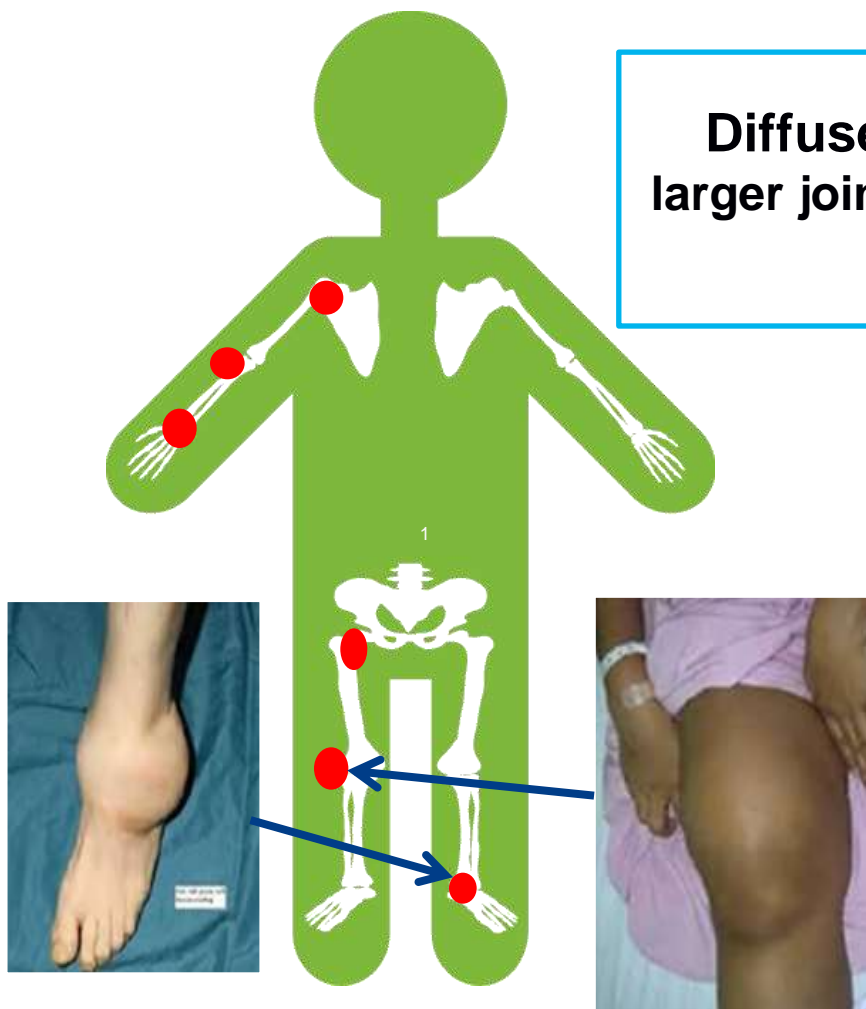


Granted Orphan Drug Designation by the FDA and EMA

Granted Breakthrough Therapy designation by FDA

No Approved Systemic Therapies for TGCT

Diffuse TGCT: a rare disease that affects larger joints such as knee, hip, ankle, shoulder, elbow¹



75% of diffuse cases involve the knee

Recurrent, diffuse TGCT may require multiple surgeries and even amputation

Early Results in Treatment of TGCT



**4 months
on pexidartinib**



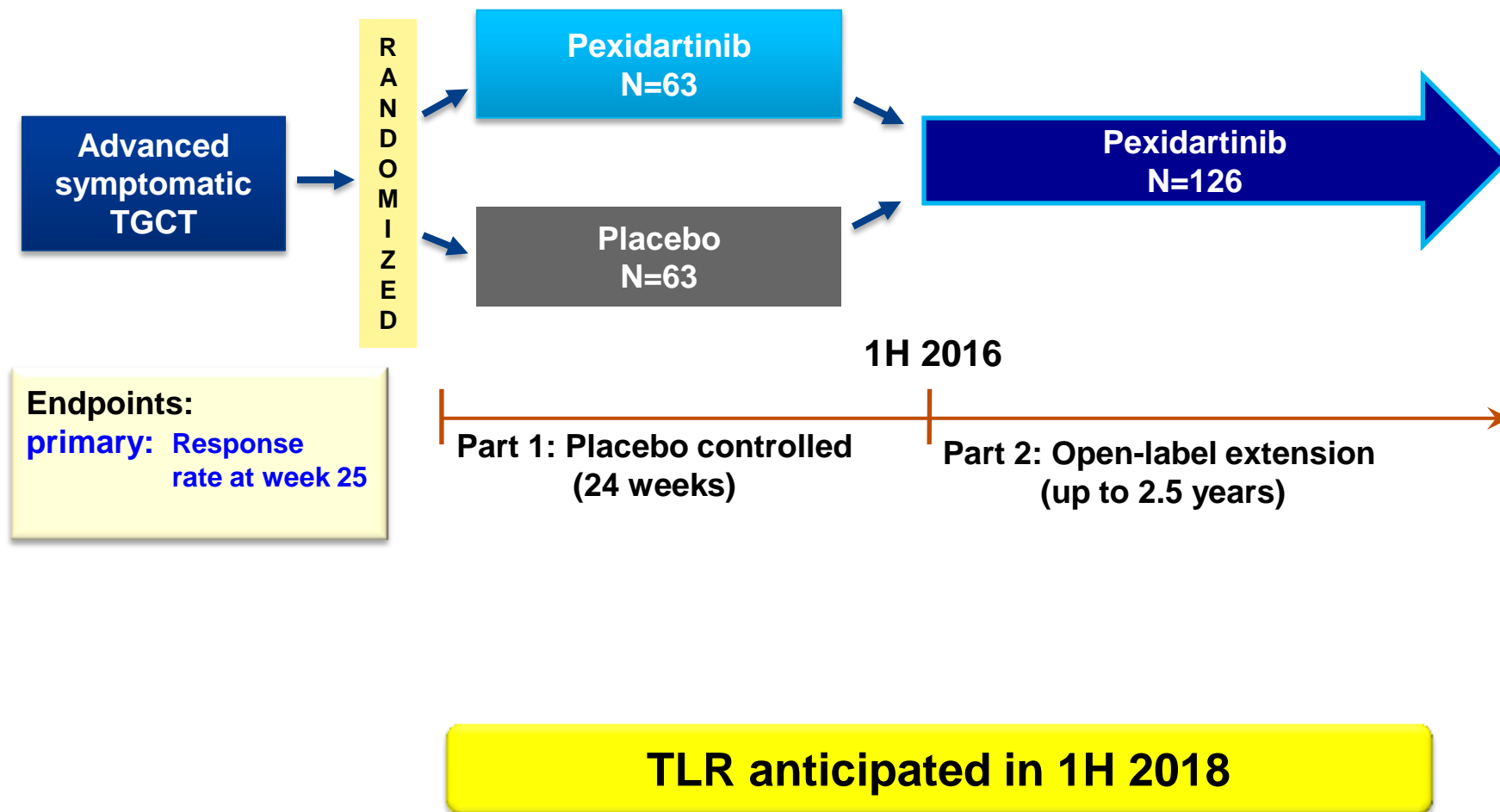
**Walking with cane
Unable to straighten knee
Narcotics for pain
Unable to work
Amputation considered**

**Walking unassisted
Improved range of motion
Off narcotics
Back to work**

Tap et al, ASCO 2014



Pexidartinib: Phase 3 Study Design



- **Treatable patients in the US, EU and Japan are estimated to be around 38,000**
 - Often under-diagnosed
 - Affected patients have normal life expectancy
- **High unmet need**
 - High morbidity
 - No systemic therapies approved



Collaboration with Merck :

Pexidartinib in combination with anti-PD-1 therapy for advanced melanoma and multiple other solid tumors



Other potential indications :

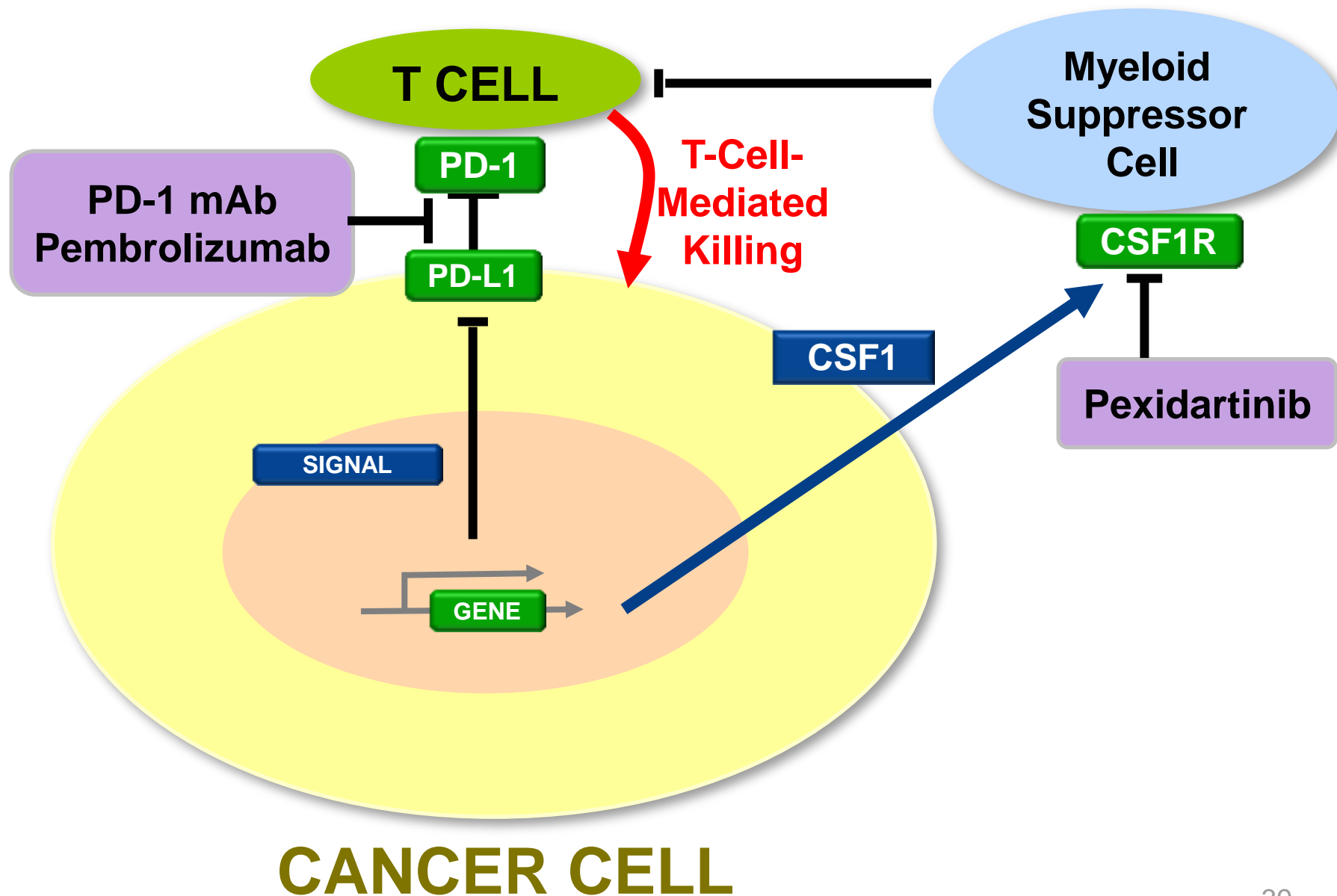
Glioblastoma

Ovarian cancer

Breast cancer

Sarcomas

Pexidartinib in Combination with anti-PD-1 Therapy for Advanced Solid Tumors



Combination study of Pexidartinib and Pembrolizumab

Phase 1 / 2a study outline

	Part 1: Dose-escalation phase	Part 2: Expansion phase
Dose	Pexidartinib: dose escalation + Pembrolizumab: 200 mg every 3wks	Pexidartinib: RP2D + Pembrolizumab: 200 mg every 3wks
Target patients for enrollment	Advanced solid tumors N=24	Advanced melanoma (+ other Solid tumors) N=376
Outcome measures	Primary: Safety during 1 year treatment Secondary: Objective response rate (rate of a complete response or partial response relative to historical control)	

TLR for part 2 anticipated in 2H 2019

Tivantinib

**Investigational MET Inhibitor for treatment of
Hepatocellular Carcinoma (HCC)**

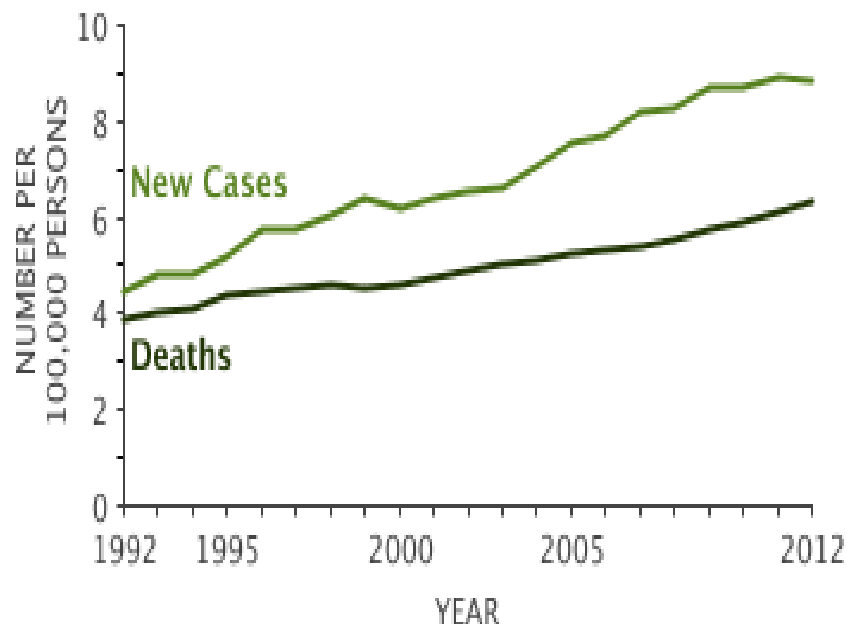


**Granted Orphan Drug Designation by
FDA and EMA**

Liver and Intrahepatic Bile Duct Cancer

◆ Epidemiology in US¹⁾

Estimated New Cases in 2015	35,660
% of All New Cancer Cases	2.2%
Estimated Deaths in 2015	24,550
% of All Cancer Deaths	4.2%



Percent Surviving
5 Years

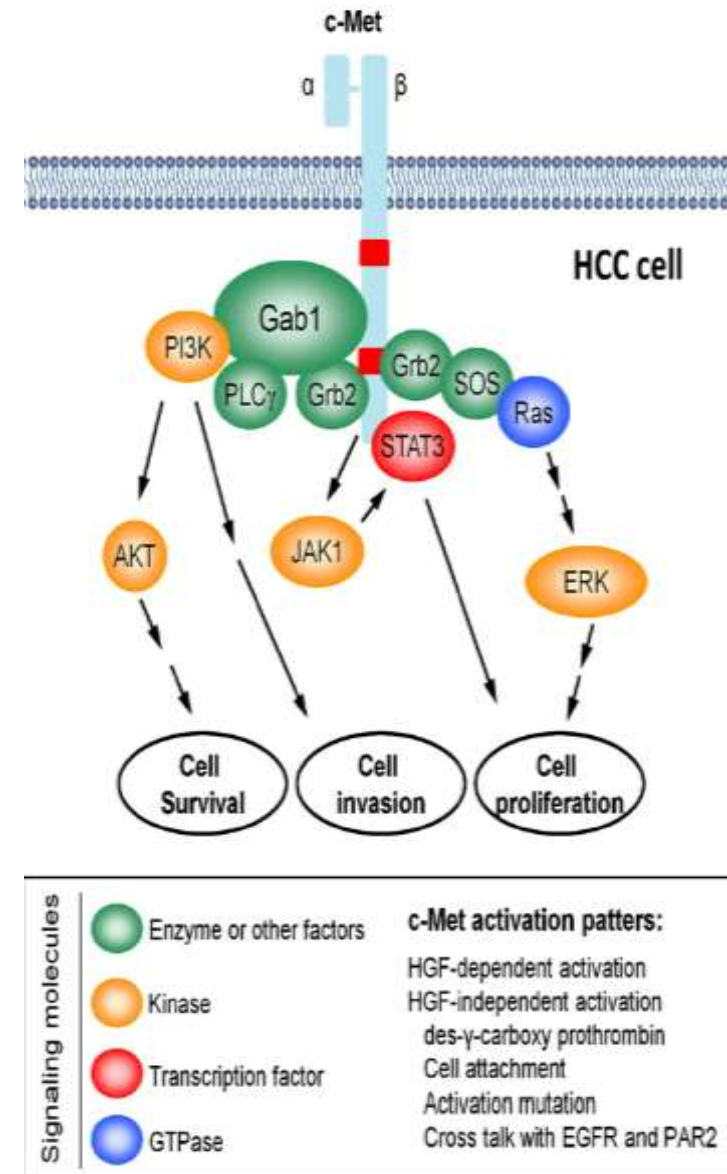
17.2%

2005-2011

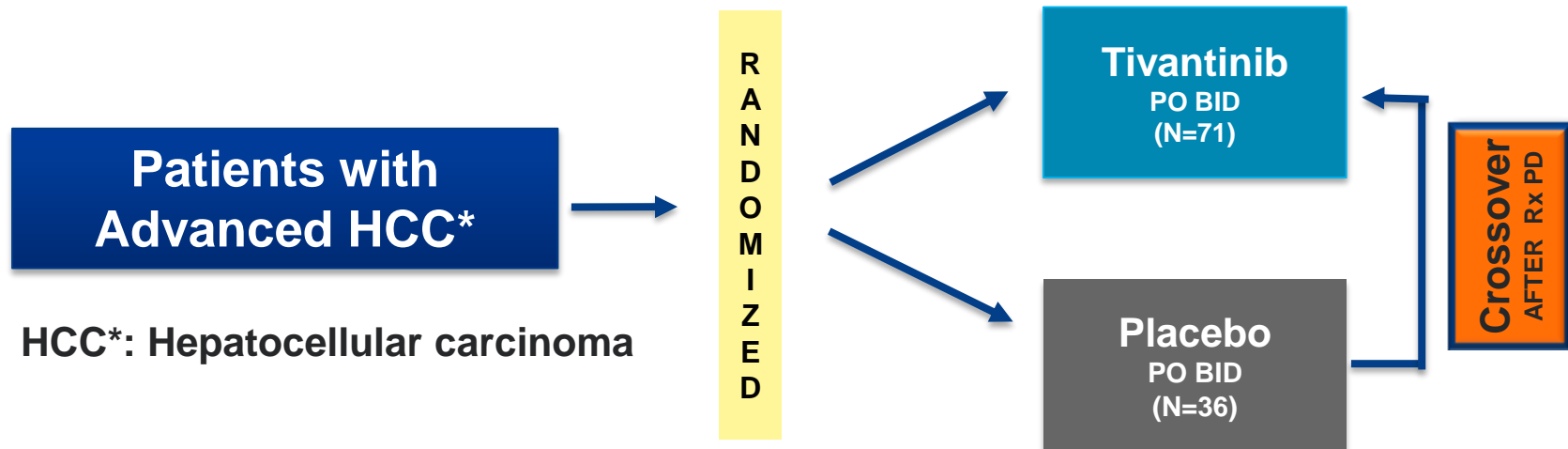
1) <http://seer.cancer.gov/statfacts/html/livibd.html> accessed 17 Nov 2015

Role of MET in HCC

- MET is the only receptor for hepatocyte-growth factor (HGF) leading to :
 - Cell survival
 - Cell invasion
 - Cell proliferation
- MET expression is correlated with poor prognosis in patients with HCC



Tivantinib: Phase 2 Study in 2nd line HCC



Endpoints:

primary: TTP

secondary: PFS, OS, ORR

tertiary: TTP, PFS, OS in subgroups by MET Diagnostic status (high vs low levels)

Successful Results of the Phase 2 Study

- ◆ Treatment with Tivantinib met the primary endpoint of the study, with a 56% improvement in TTP (data not shown here)

- TTP: HR=0.64 p=0.04

- ◆ Pronounced benefit was observed in patients with high expression of MET

- TTP: HR = 0.43 p= 0.03

- OS: HR = 0.38 p= 0.01

- ◆ These are the first randomized data in HCC showing OS advantage with a MET inhibitor and identifying a subgroup responding to a targeted therapy

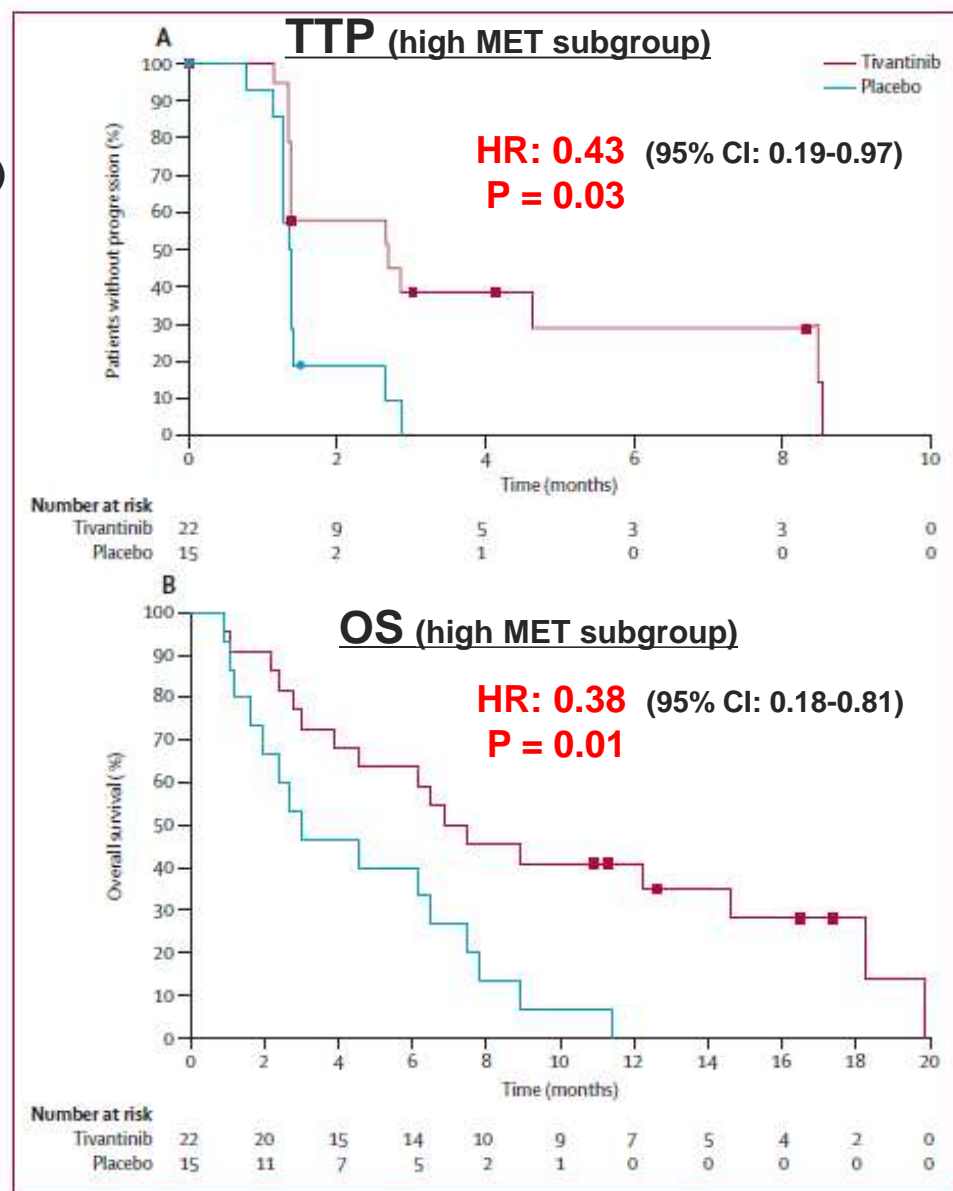
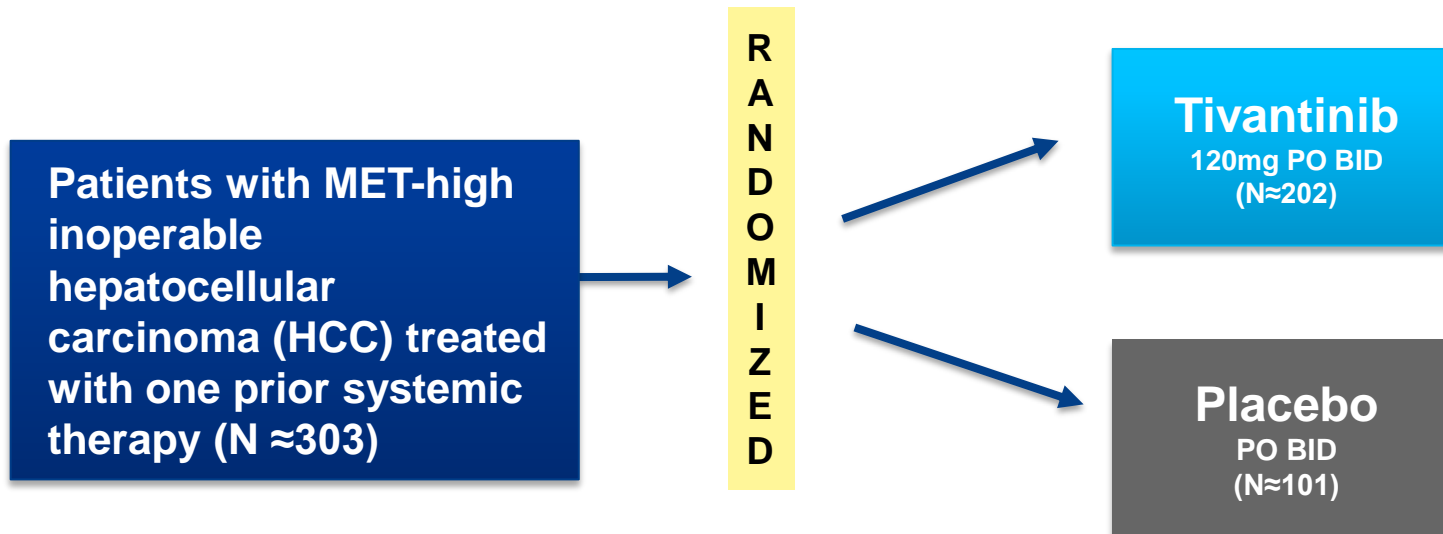


Figure 4: Kaplan-Meier estimate of time to progression (A) and overall survival (B) in the MET-high subgroup. Squares and circles represent censoring of data.

Tivantinib: METIV-HCC Phase 3 design



Endpoints:

primary: OS
secondary: PFS, safety

TLR anticipated in 1H 2017

Patritumab

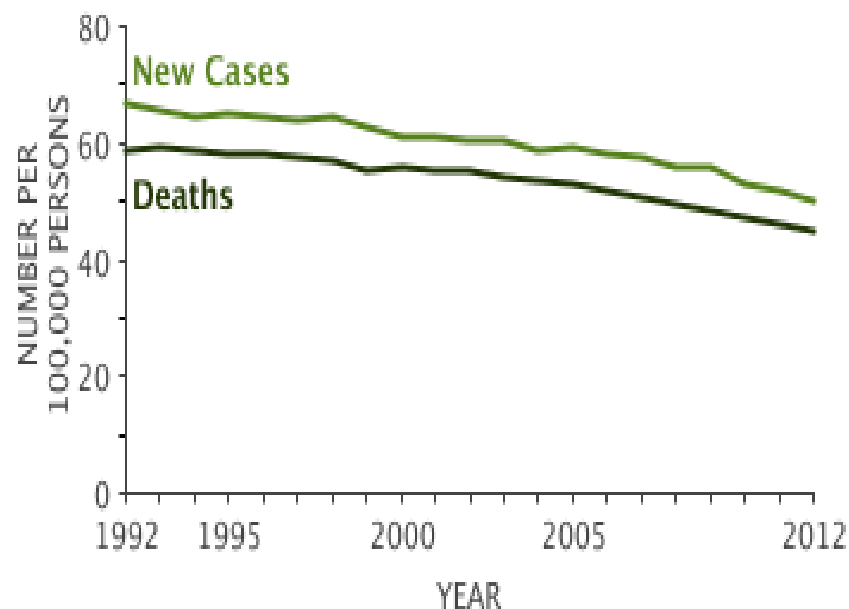
Investigational Anti-HER3 Monoclonal Antibody
Non-Small Cell Lung Cancer (NSCLC)
Head and Neck Cancer (H&N)



Lung and Bronchial Cancer

◆ Epidemiology in US¹⁾

Estimated New Cases in 2015	221,200
% of All New Cancer Cases	13.3%
Estimated Deaths in 2015	158,040
% of All Cancer Deaths	26.8%



Percent Surviving
5 Years

17.4%

2005-2011

1) <http://seer.cancer.gov/statfacts/html/aly1.html> accessed 17 Nov 2015

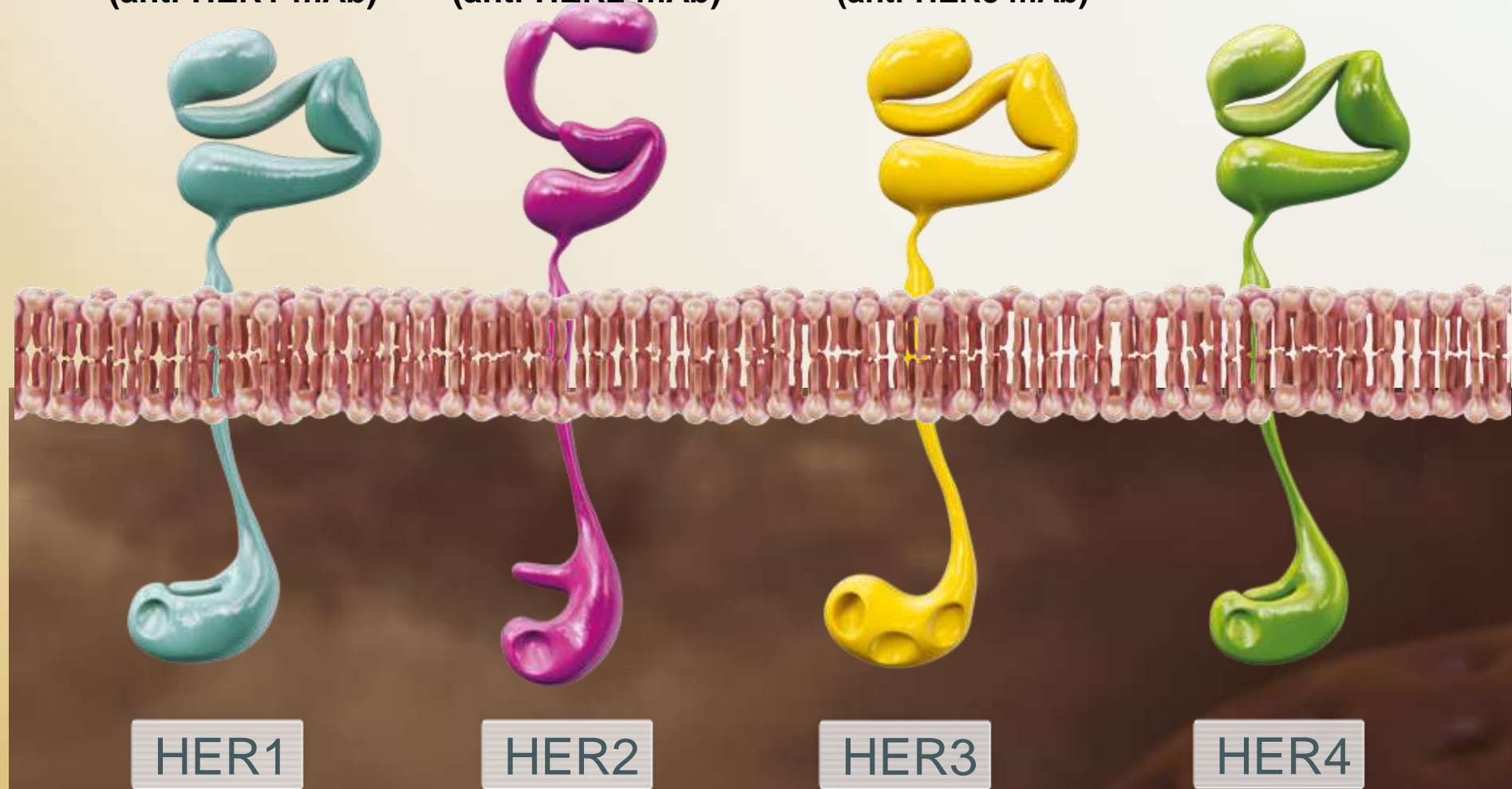
The HER Family

(human epidermal growth factor receptors)

Erbix[®]
(anti-HER1 mAb)

Herceptin[®]
(anti-HER2 mAb)

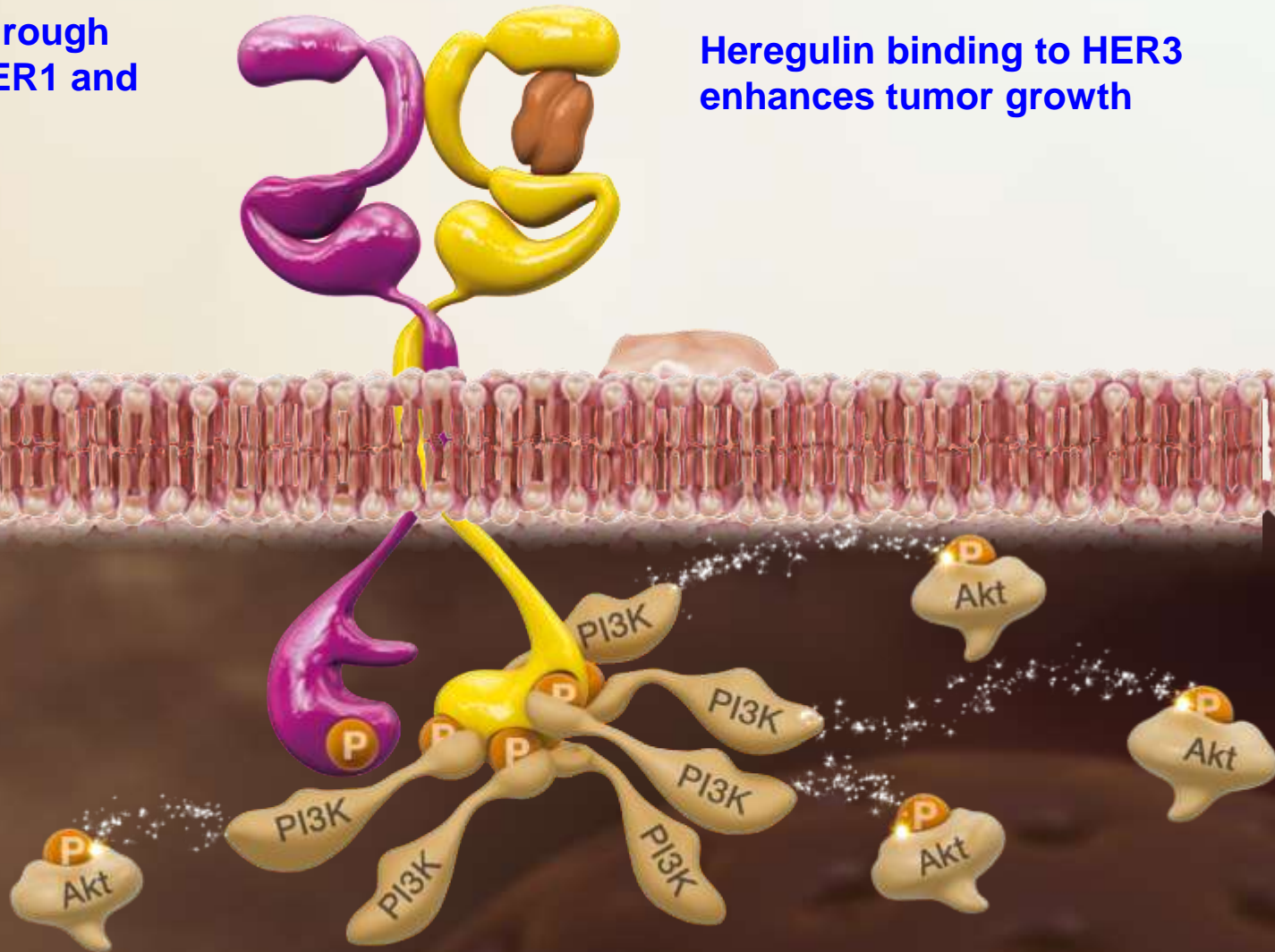
Patritumab
(anti-HER3 mAb)



Unique Property of HER3: Escape from Growth Inhibition associated with Current Treatments

HER3 is activated through dimerization with HER1 and HER2 receptors

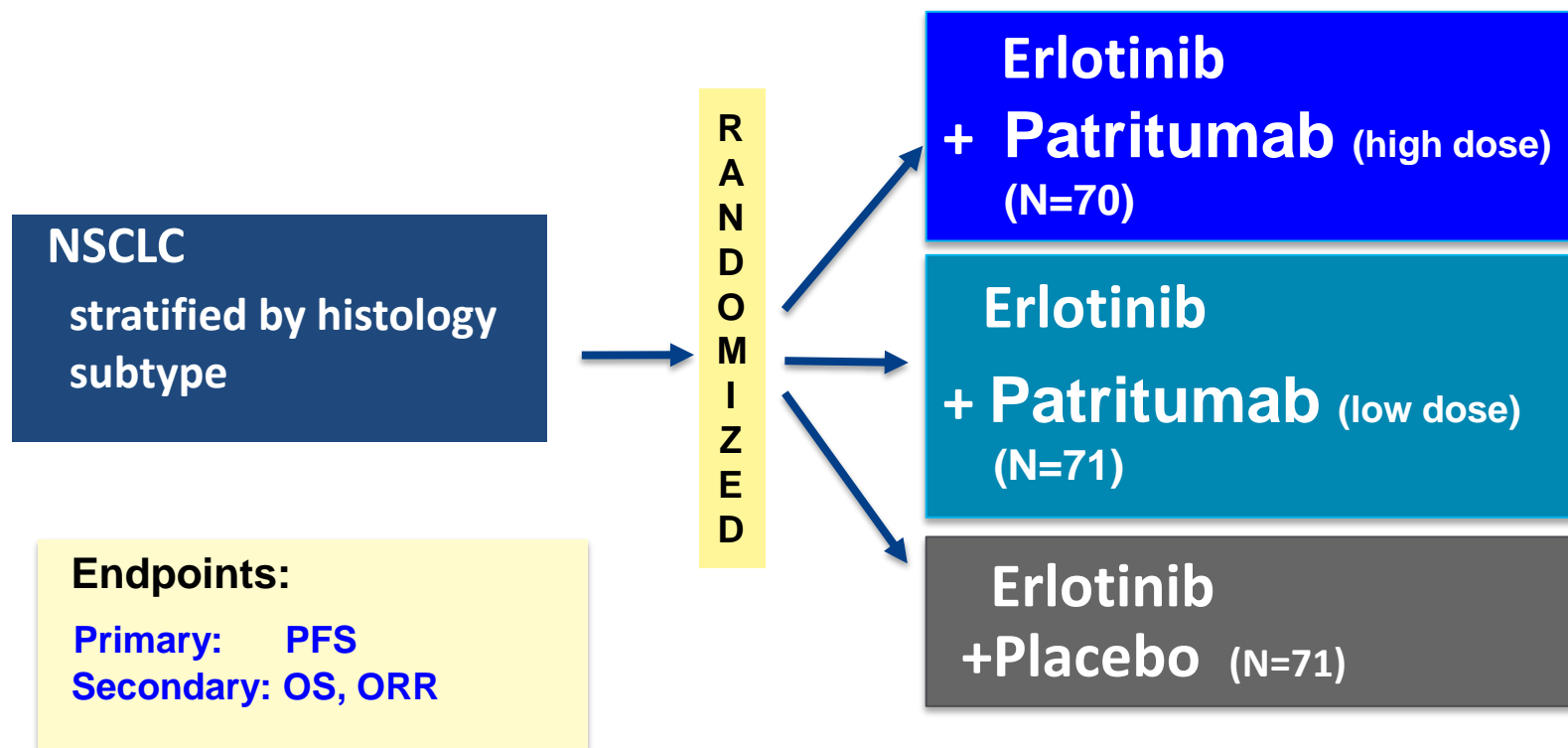
Heregulin binding to HER3 enhances tumor growth



Phase 2: HERALD Study Design

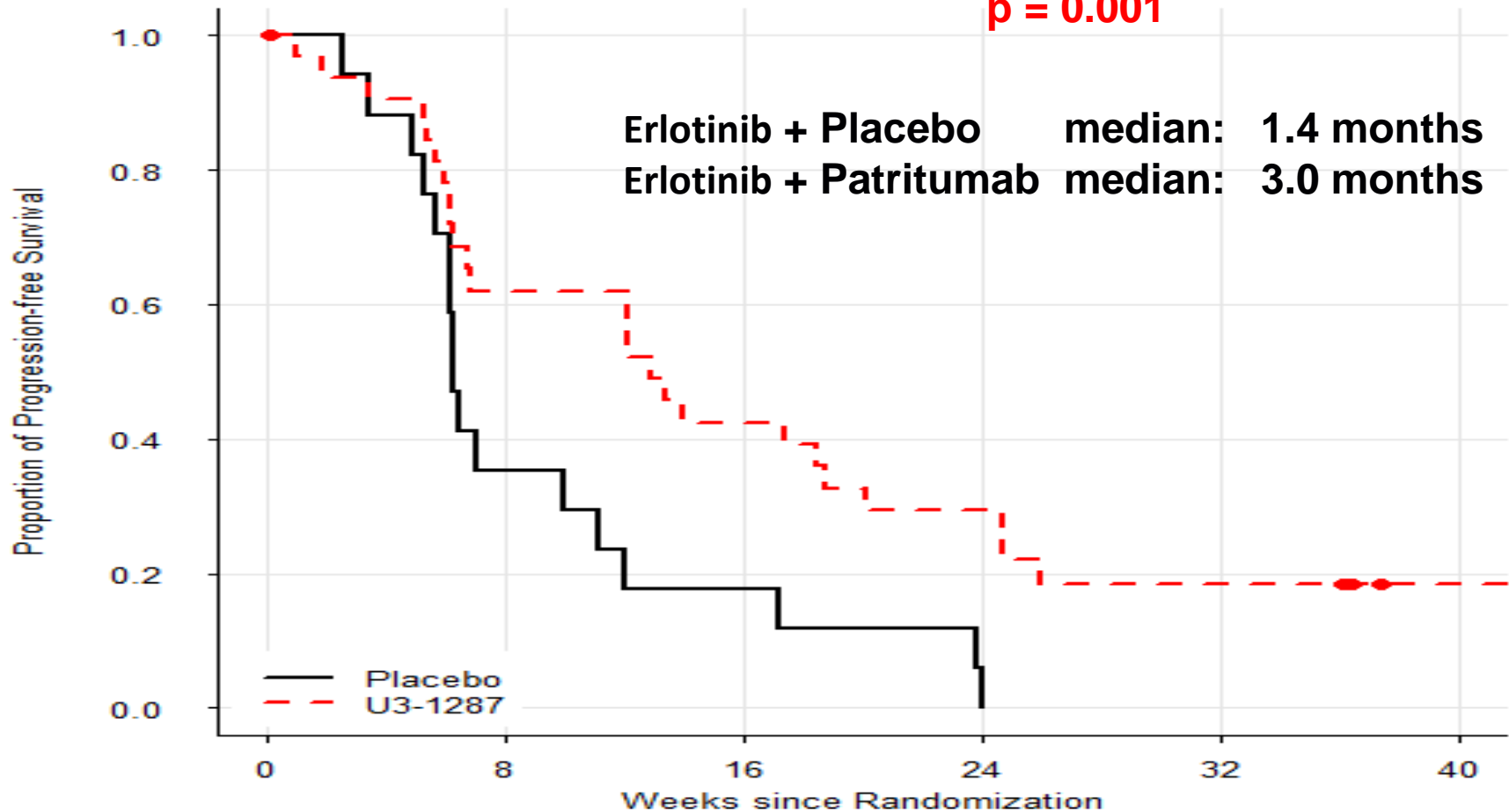
Subjects with Advanced NSCLC Who Have Progressed on at Least One Prior Chemotherapy

- **Biomarker Hypothesis :** Patritumab will have the greatest benefit in patients with high expression of the HER3 ligand heregulin



HERALD: PFS in patients with High levels of Heregulin

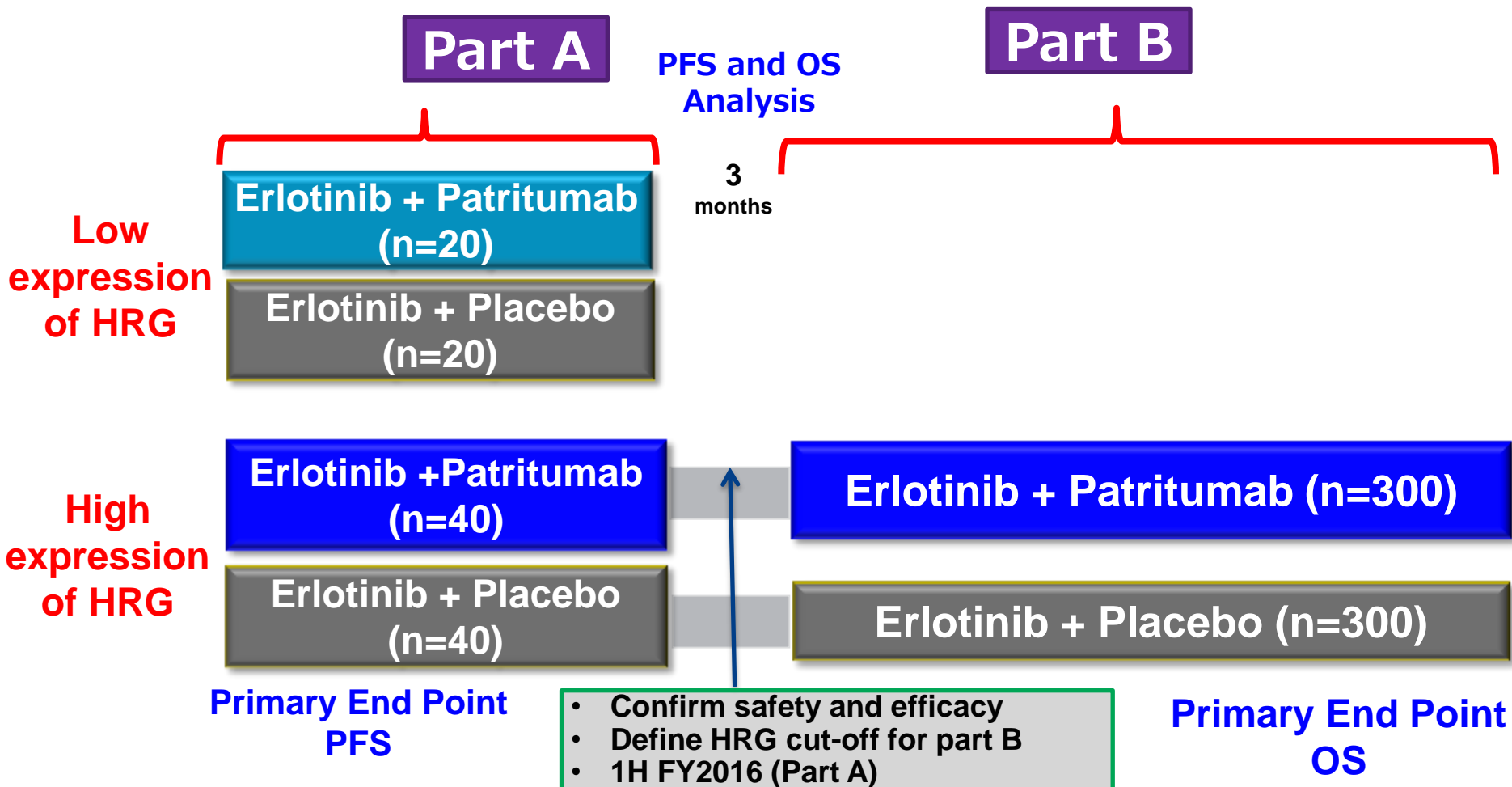
Patritumab vs placebo **HR = 0.32** (95% CI: 0.16, 0.67)
p = 0.001



Biomarker positive group showed significant improvement in PFS

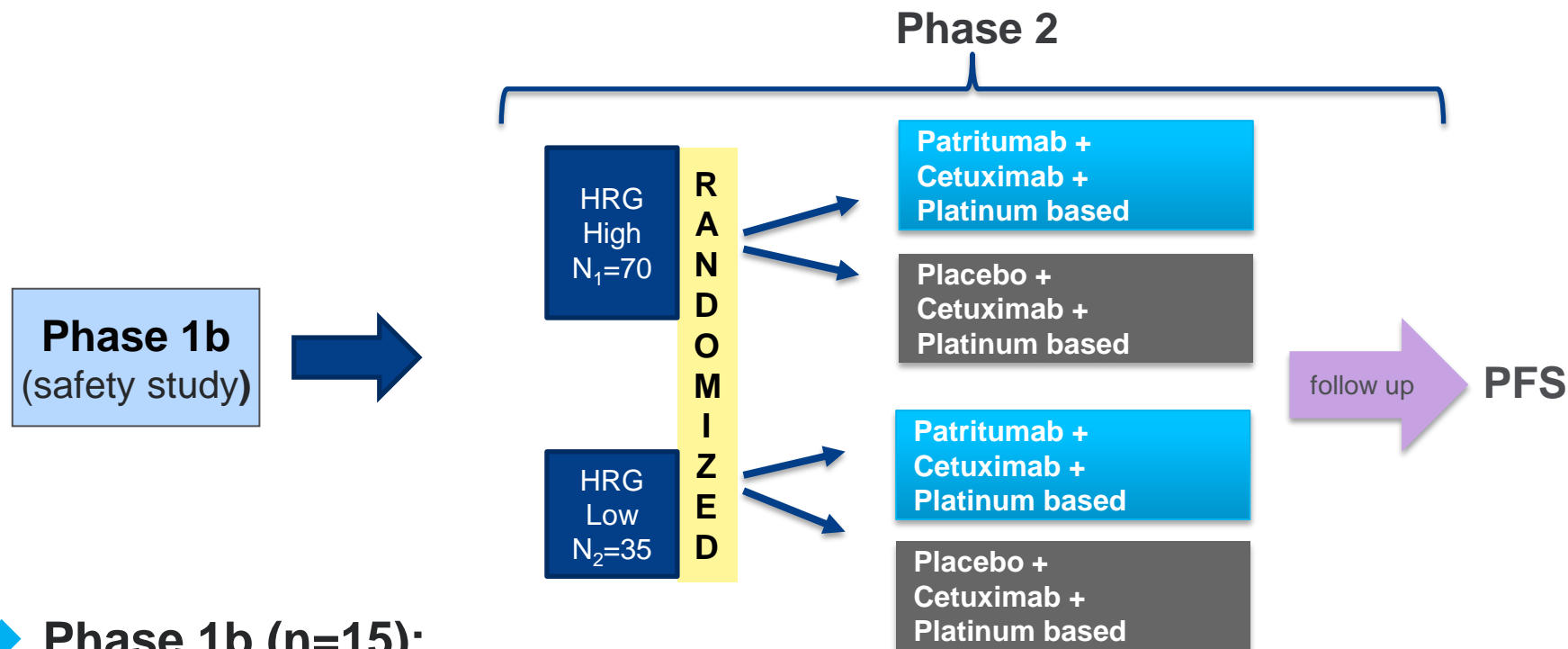
Patritumab: HER3 Lung Trial

2 Part Phase 2b / 3 Study



TLR (Part B) anticipated in 2H 2018

Patritumab: Head & Neck Cancer Indication



◆ Phase 1b (n=15):

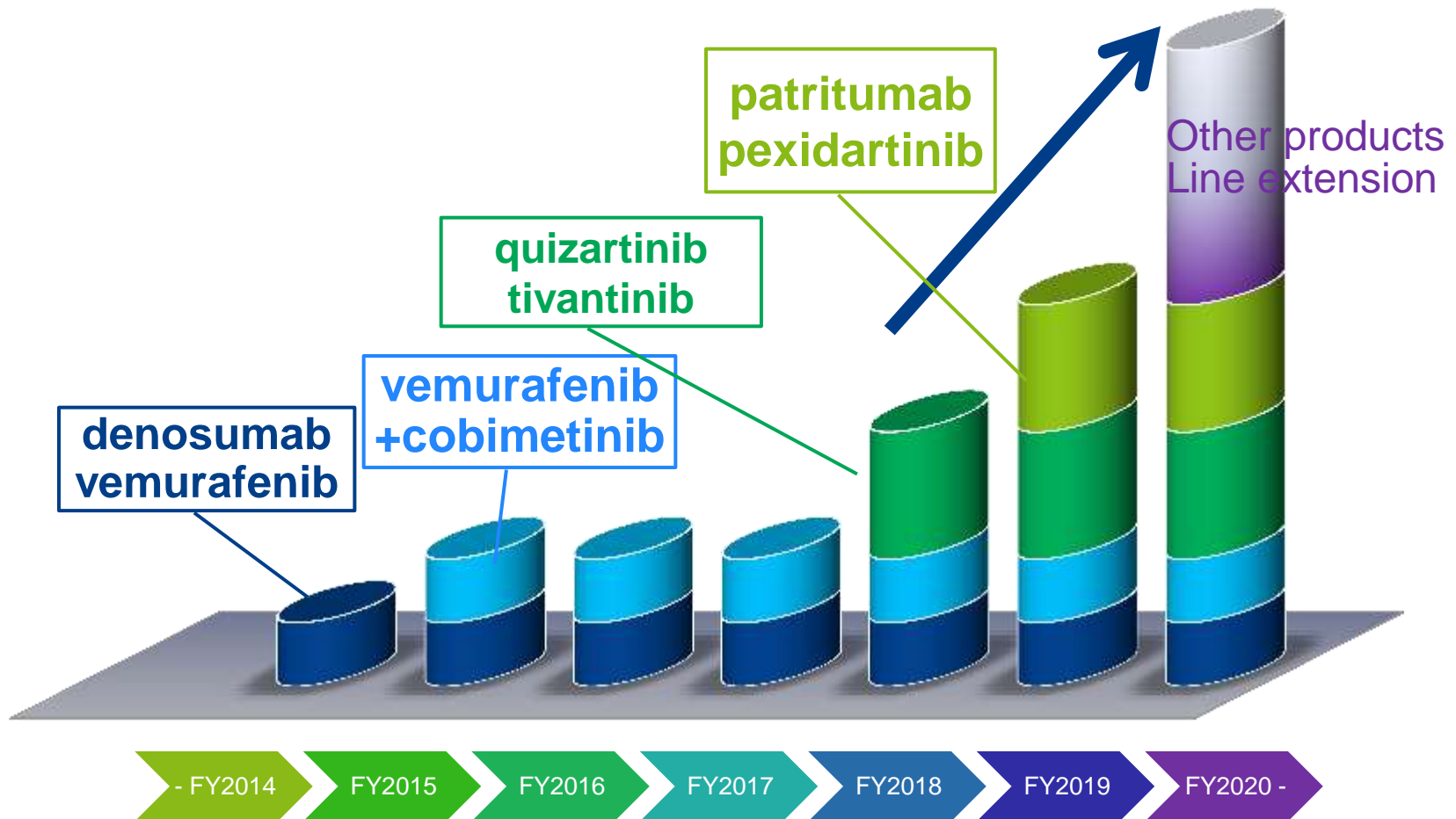
- Patients: R/M Head and Neck Cancer 1st Line
- Cetuximab + Platinum chemo+ Patritumab
- Enrollment completed
- Results will be published in 1H 2016

◆ Phase 2 (n=105)

- Enrollment to begin December 2015
- 2:1 randomization: high vs low HRG

Launch Timeline of DS Pipeline in Oncology

Oncology pipeline is a key driver for DS future growth



Passion for Innovation.
Compassion for Patients.™

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Thank you

A decorative wavy line spans the width of the slide, starting with a yellow-to-green gradient on the left and transitioning to a solid green line on the right.

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