

# Developing Highly Differentiated Antibody Therapeutics

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# Company Highlights

Differentiated therapeutic antibodies pioneering in severe autoimmune diseases & cancer



## Novel concept in autoimmunity

- **ARGX-113:** first-in-class FcRn antagonist targeting array of IgG mediated AI diseases
  - Phase 1: favorable safety profile; IgG reduction up to 85%
  - Phase 2: achieved proof of concept in myasthenia gravis, ongoing in immune thrombocytopenia and pemphigus vulgaris



## Deep pipeline with multiple shots on goal

- **ARGX-110:** first-in-class CD70 antagonist in Phase 1/2 in CTCL and AML
- 4 clinical stage programs; 3 preclinical programs; Innovative Access Program



## Powerful technology suite

- **SIMPLE Antibody™:** Human V-regions sourced from llama unlock **novel & complex targets**
- **NHance®, ABDEG™, POTELLIGENT®:** Fc engineering to augment natural properties of antibodies



## Validating selective partnerships

- **abbvie:** **ARGX-115** (Immuno-oncology-focused novel target GARP)
  - \$40mm upfront and up to \$625mm in potential milestone payments
- Additional partnerships designed to maximize value of platform in non-core areas



## Well financed to execute plan

- **Strong cash position:** €162mm Sept 30, 2017 plus ~ €210mm net proceeds follow-on Dec 2017
- Blue chip investor base: more than 60% U.S. Shareholders
- 32.17 mio shares outstanding

## Pipeline

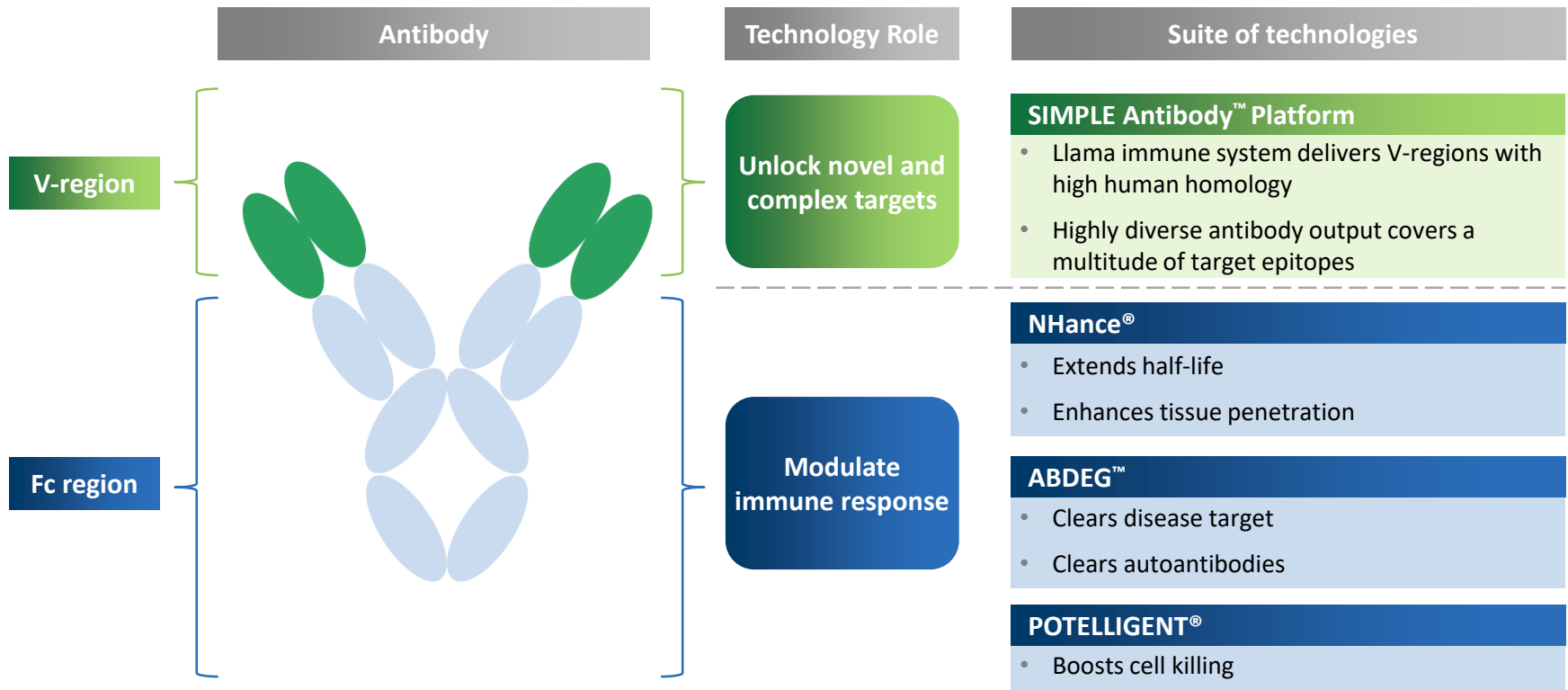
- ARGX-113 Ph2 MG: Topline data (Dec '17)
- ARGX-110 Ph1/2: Interim data AML and update CTCL (Dec '17)
- ARGX-113 Ph1 initiation in healthy volunteers with subcutaneous formulation (Oct '17)
- ARGX-113 Ph2 ITP: 50% recruited (Sept '17)
- ARGX-113 Ph2 initiation in PV (Sept '17)

## Financing

- Upsized \$266 mm gross proceeds follow-on (Dec '17)
- Use of proceeds
  - Ph3 MG: launch and prepare production process for commercial production
  - Ph2 ITP & PV: clinical development and prepare for Ph3 (1 of these indications)
  - Ph1 subQ formulation: clinical development
  - Ph1/2 AML: clinical development






## Maximizes value of our suite of technologies and capabilities





We apply our unique suite of technologies to create differentiated product candidates against novel targets



Product Candidate	Target	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Next Milestone / Commentary
Wholly-Owned Product Candidates							
ARGX-113 (efgartigimod)	FcRn	Myasthenia Gravis	<div></div>				Positive Phase 2 topline results 
		Immune Thrombocytopenia	<div></div>				2H18: Phase 2 topline results
		Pemphigus Vulgaris	<div></div>				2H18: Phase 2 interim data
		Chronic Autoimmune Diseases	<div></div>	SubQ Formulation		2H18: Phase 1 interim data	
ARGX-110 (cusatuzumab)	CD70	T-Cell Lymphoma	<div>Phase 1/2</div>				2H18: Phase 2 topline results CTCL
		Acute Myeloid Leukemia	<div>Phase 1/2</div>				2H18: Transition into Phase 2 in AML/MDS
ARGX-111	c-MET	Solid Tumors / Blood Cancer	<div></div>				Intend to partner
Partnered Product Candidates							
ARGX-109 (gerilimzumab)	 IL-6	Rheumatoid Arthritis	<div></div>				Eligible for up to €32.5mm in milestones, royalties & additional shares of Bird Rock stock
ARGX-112	 IL-22R	Skin Inflammation	<div></div>				Eligible for up to ~€100mm in milestones and tiered royalties
ARGX-115	 GARP	Cancer Immunotherapy	<div></div>				Received \$50mm so far; eligible for up to \$625mm milestones & tiered royalties
ARGX-116	 ApoC3	Dyslipidemia	<div></div>				Eligible for double-digit royalties and exclusive option to license the program

- We obtained the exclusive license option from **Broteio Pharma** for an antibody against a novel complement target
- We have an antibody discovery alliance with **Shire** focused on multiple rare disease targets



# ARGX-113: A Pipeline-in-a-Product Opportunity

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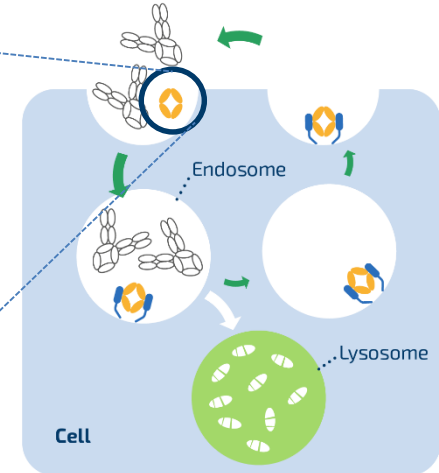
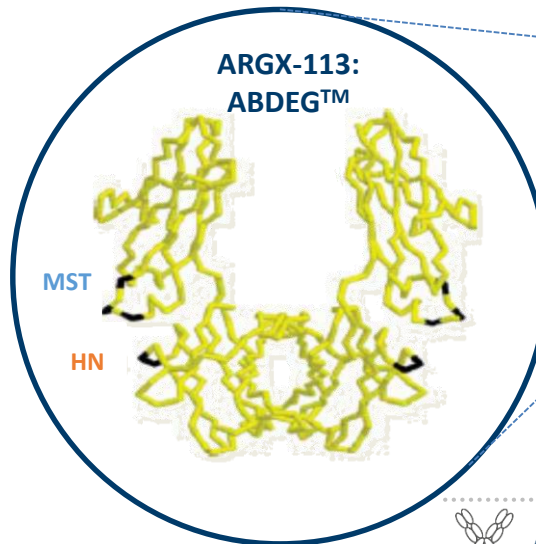
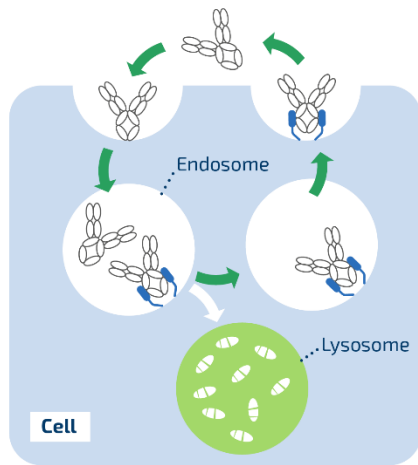


# ARGX-113 Exploits The Natural Fc/FcRn Interaction Site, Leveraging Our Proprietary ABDEG™ Technology

IgG antibodies recycle through FcRn<sup>(1)</sup>...

...ARGX-113 potentially blocks FcRn...

...leading to IgG elimination



Antibody



ARGX-113



FcRn

- ARGX-113 is a human IgG1 Fc-fragment that utilizes ABDEG™ Fc engineering technology<sup>(2)(3)</sup>
- ARGX-113 does not expose the Fc tail and cannot engage Fcγ receptors
- ARGX-113 targets and binds to FcRn blocking the recycling of IgG leading to an elimination of IgG antibodies
- Pathogenic IgG antibodies mediate multiple autoimmune diseases

(1) Roopenian et al. 2007, Nat Rev Immunol.

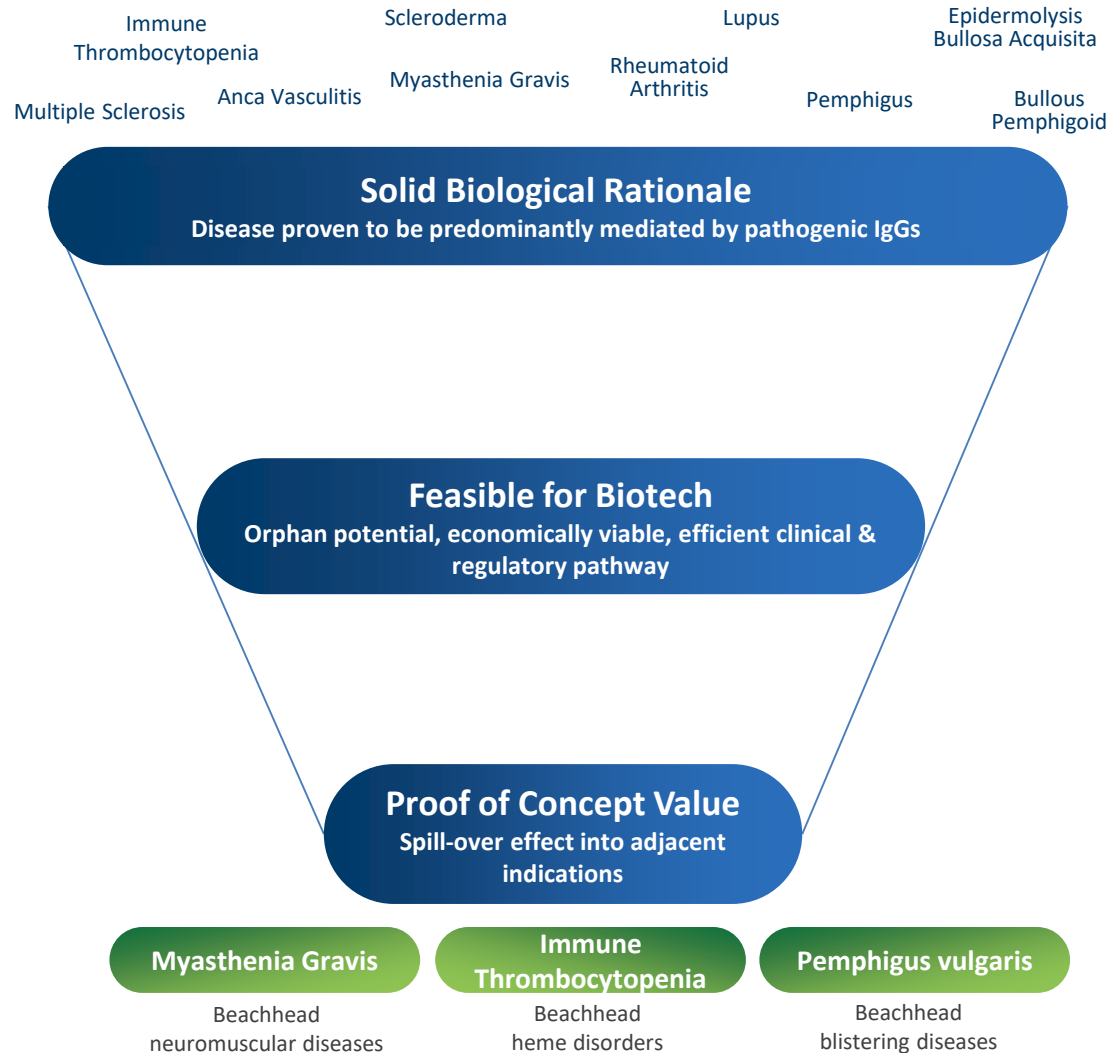
(2) Vaccaro et al. 2005, Nat Biotech.

(3) argenx data

# ARGX-113: Pipeline-In-Product Opportunity

## Prioritizing IgG autoantibody mediated diseases

### Landscape of IgG severe autoimmune diseases (selection)



# Myasthenia Gravis Overview

## What is Myasthenia Gravis (MG)?

- Rare autoimmune disorder; 64,000<sup>(1)</sup> patients in U.S., 55,000<sup>(2)</sup> with generalized MG (gMG), affecting all ages and both genders
- MG associated with muscle weakness; can be life threatening if respiratory muscles affected
- Symptoms include: Life-threatening choking; muscle dislocation; eyelid fatigue; pain; problems with vision, speech, mobility, fatigue

## Limited current treatment options

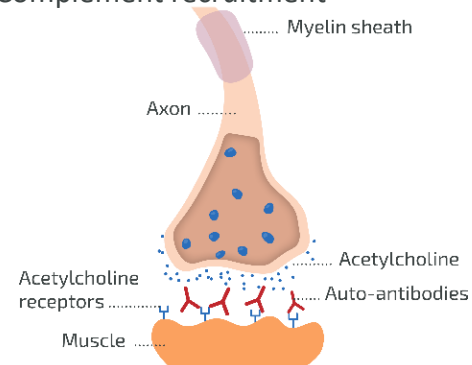
- Limited treatment options
  - Cholinesterase inhibitors
  - Corticosteroids
  - Immunosuppressants
  - IVIg, Plasmapheresis (exacerbations or rescue)
  - Soliris®
  - Thymectomy (minority of patients)
- Severe side effects of current treatment options: Injury, liver malignancy, osteopenia, osteoporosis, cataracts, depression, hypertension, hematologic suppression, headache, disfigurement, infection, thrombosis
- IVIg, Plasmapheresis and Soliris® place a heavy cost burden on healthcare systems (~\$79,000<sup>(3)</sup>, ~\$101,000<sup>(3)</sup> and ~\$700,000<sup>(4)</sup>)



## Myasthenia Gravis Cause

Autoantibodies (IgG type) destroy neuromuscular junctions:

- Blocking of Acetylcholine Receptors (AChRs)
- Cross-linking + internalization of AChRs
- Complement recruitment



(1) Philips et al. 2003, Ann N Y Acad Sci

(2) Drachman et al. 1993, New Eng J Med.

(3) Heatwole et al. 2011, J Clin Neuromuscul Dis.

(4) Source: Reprinted with permission by First Databank Inc.

WAC = Wholesale Acquisition Cost 8/21/17

# Autoantibody Levels (IgGs) Correlate With MG Disease Score

>30% autoantibody reduction clinically meaningful

Treatment*	Plasmapheresis	Immuno-adsorption	IVIg
Decrease in autoantibody levels (%) after treatment	62.6 ± 0.9	55.1 ± 3.2	28.9 ± 3.8
Decrease in disease score (%) after treatment	60.8 ± 3.5	42.4 ± 4.2	23.8 ± 3.7
Clinical efficacy rate after 14 days**	12/15	7/10	6/15
Duration of hospital stay (days)	12.80 ± 0.28	13.50 ± 0.50	16.00 ± 0.50

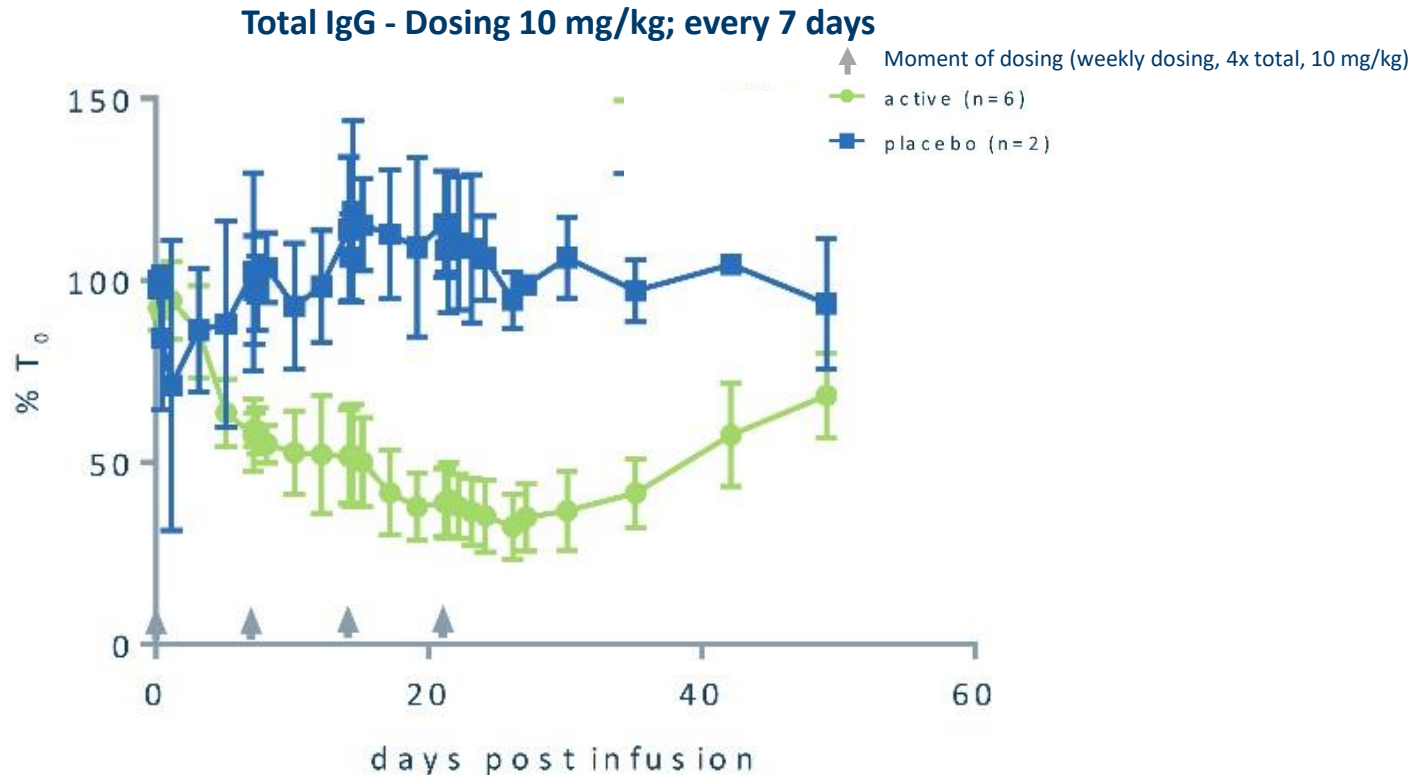
\* Comparison between 3 cycles of Plasmapheresis/Immunoabsorption every 24h-48h and 5 cycles of IVIg every 24h

\*\* Clinically effective if disease score has improved by >50% 14 days after treatment

**Degree of autoantibody reduction correlates with clinical improvement and reduced hospital stay**

# ARGX-113: Selective and Lasting IgG Reduction

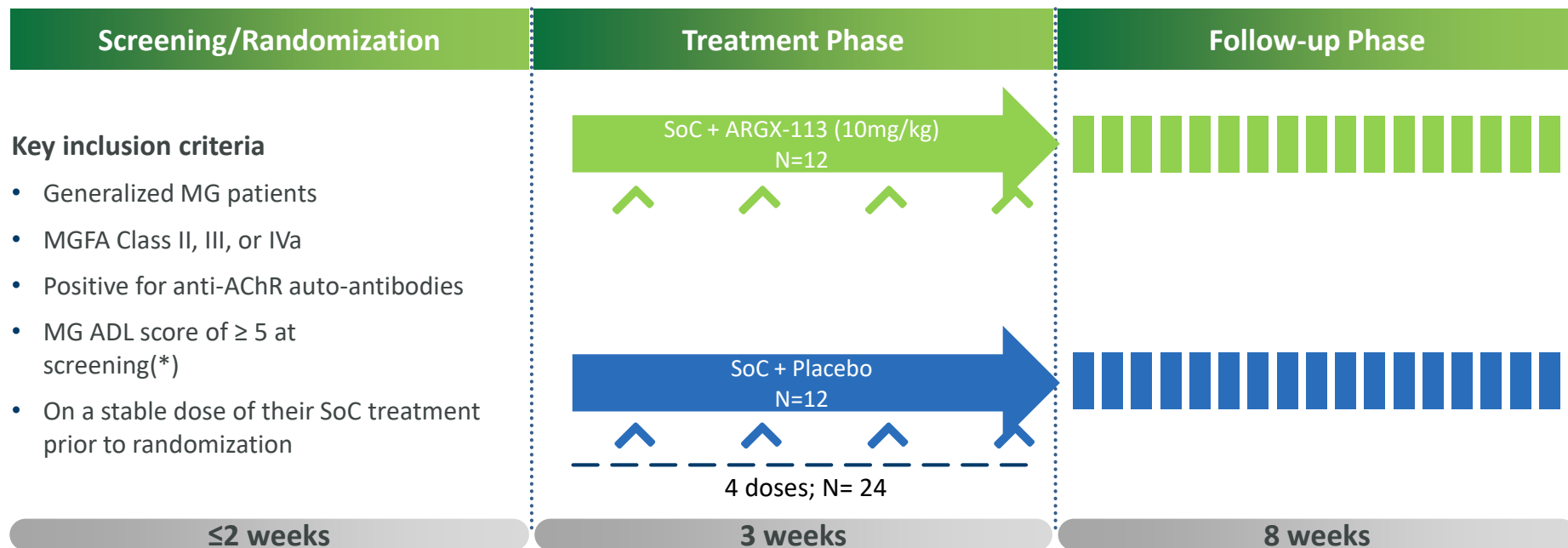
PD data multiple ascending dose (MAD) study in healthy volunteers



- Potent IgG reduction across isotypes (AChR autoantibodies are IgG1/3; MuSK autoantibodies are IgG4)
- Up to 85% total IgG reduction; single dose delivers 50% total IgG reduction
- After last dose, IgG levels remain reduced by 50% or more for ~3 weeks, return to baseline after > 1 month
- Comparable data for 25 mg/kg, every 7 days (data not shown)

# Myasthenia Gravis Phase 2 Trial Design

Study start-  
to-finish in  
11 months



## Primary endpoint

Safety & tolerability

## Secondary endpoints

Efficacy

(MG-ADL; QMG;  
MGC; MG-QoL)

PK

PD

total IgG; pathogenic  
IgG

Immuno-  
genicity

(\*) >50% of the score attributed to non ocular items



ClinicalTrials.gov: NCT02965573, argenx data

# MG Phase 2 Baseline Population And Disease Characteristics

	Placebo (N = 12)	ARGX-113 (N = 12)
Age (mean ± SD)	43.5 ± 19.3	55.3 ± 13.6
Sex (Number, %)		
• Male	4 (33.3%)	5 (41.7%)
• Female	8 (66.7%)	7 (58.3%)
Race		
• Asian	-	8.3%
• Black / African American	8.3%	-
• White	91.7%	91.7%
• Mixed / other	-	-
MGFA classification at screening*		
• Class I	-	-
• Class II	7 (58.4%)	6 (50.0%)
• Class III	4 (33.3%)	6 (50.0%)
• Class IV	1 ( 8.3%)	-
• Class V	-	-
Baseline QMG score (mean ± SD)	11.8 ± 5.4	14.5 ± 6.3
Baseline MG-ADL score (mean ± SD)	8.0 ± 2.2	8.0 ± 3.0
Baseline MGC score (mean ± SD)	14.5 ± 4.5	16.7 ± 8.7
Baseline MGQoL score (mean ± SD)	14.5 ± 6.1	19.7 ± 5.7
SoC		
• Acetylcholinesterase inhib. N (%)	11 (91.7%)	12 (100.0%)
• Corticosteroids N (%)	5 (41.7%)	8 (66.7%)
• Immunosuppressants N (%)	2 (16.7%)	9 (75.0%)



# Favorable Safety And Tolerability Profile

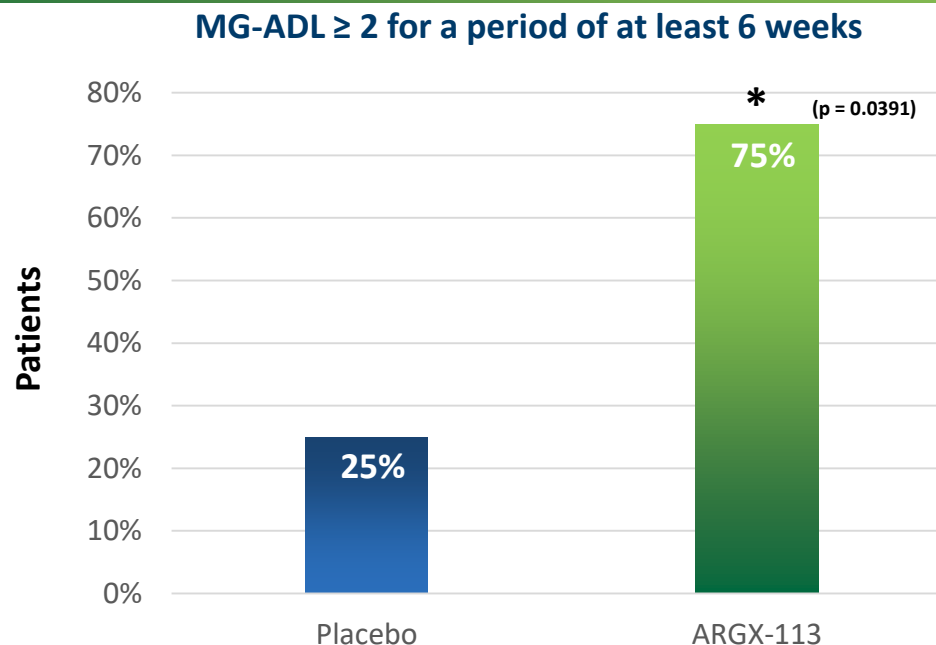
Convenient 2h infusion enabling out-patient treatment

Treatment Emergent Adverse Events (TEAEs) Reported in ≥ 2 patients	Placebo (N = 12)	ARGX-113 (N = 12)
<b>TEAEs (Total)</b>	<b>10 (83.3%)</b>	<b>10 (83.3%)</b>
• Headache	3 (25.0%)	4 (33.3%)
• Nausea	1 ( 8.3%)	1 ( 8.3%)
• Diarrhea	1 ( 8.3%)	1 ( 8.3%)
• Abdominal pain upper	1 ( 8.3%)	1 ( 8.3%)
• Arthralgia	2 (16.7%)	-
• B-lymphocyte decrease	-	2 (16.7%)
• Lymphocyte count decrease	-	2 (16.7%)
• Monocyte count decrease	-	2 (16.7%)
• Neutrophil count increase	-	2 (16.7%)
• Myalgia	-	2 (16.7%)
• Pruritus	2 (16.7%)	1 ( 8.3%)
• Rhinorrhea	1 ( 8.3%)	1 ( 8.3%)
• Tooth abscess	2 (16.7%)	-
• Toothache	2 (16.7%)	-
<b>ARGX-113 deemed related TEAEs</b>	<b>3 (25.0%)</b>	<b>8 (66.7%)</b>
• Headache	1 ( 8.3%)	3 (25.0%)
• Monocyte count decrease	0 ( 0.0%)	2 (16.7%)
• Rhinorrhea	1 ( 8.3%)	1 ( 8.3%)

- ARGX-113 was well-tolerated in patients and confirmed findings from Phase 1 healthy volunteer trial
- The TEAEs profile was balanced between ARGX-113 and placebo
- TEAEs were mostly mild (grade 1) in severity. No severe AEs reported
- No deaths, Serious AEs or TEAEs leading to discontinuation of treatment were reported during the trial

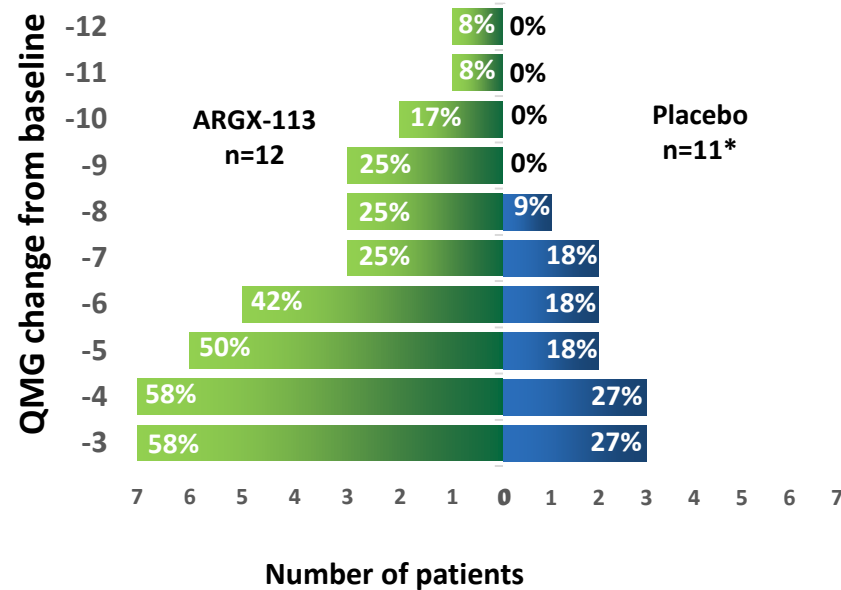
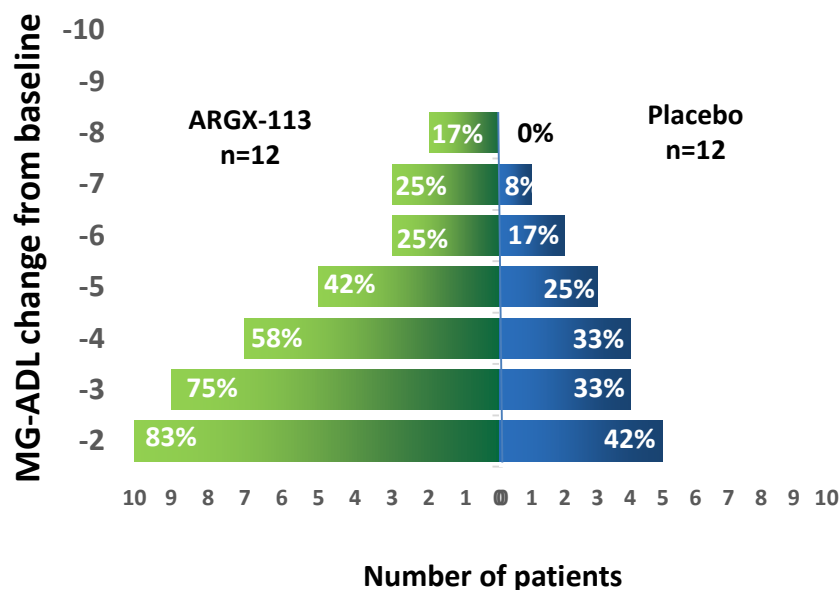


## 75% Of ARGX-113 Treated Patients Achieved Lasting Response



- **83% of patients treated with ARGX-113** achieved a clinically meaningful response (MG-ADL  $\geq 2$ )
- **75% of patients treated with ARGX-113** had a clinically meaningful and statistically significant improvement in MG-ADL score for a period of at least 6 consecutive weeks versus 25% of patients on placebo

# ARGX-113 Group Showed Strong Clinical Improvement Over Placebo Group – Day 29 data (1 week post last dosing)



- Increasing differentiation observed between the ARGX-113 and placebo treatment group with increasing MG-ADL thresholds
- ARGX-113 treated patients showed rapid onset of disease improvement, with clear separation from placebo 1 week after the first infusion (data not shown)
- Disease improvement was found to correlate with reduction in pathogenic IgG levels
- ARGX-113 treatment resulted in a strong clinical improvement over placebo during the entire duration of the study as measured by all four predefined clinical efficacy scales

## Transformational Data Set



**Consistent and compelling safety & tolerability profile is a key differentiator in FcRn antagonist space**



**Fast, strong and sustained benefit; clinically meaningful and statistically significant**



**Strong correlation between IgG level reduction and disease improvement; validating focus on IgG-mediated diseases**



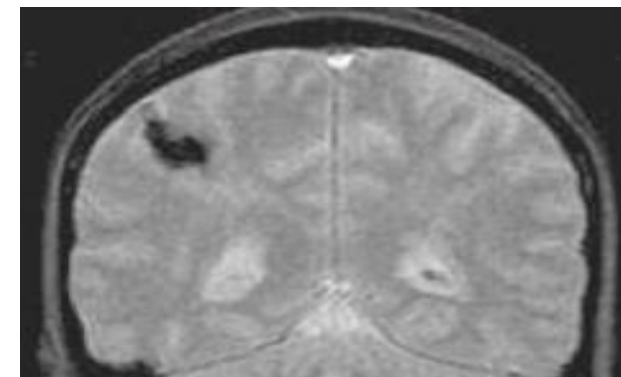
**Phase 2 execution catapults ARGX-113 towards Phase 3**

## What is Immune Thrombocytopenia?

- Rare bleeding disease; estimated 72,000<sup>(1)</sup> patients in US, more frequent in females and patients over 60
- Symptoms range from mild bruising to severe bleeding
- Symptoms include: Fatigue, emotional strain, impact on work, fear of bleeding, impact on social activities, bruising

## Limited current treatment options

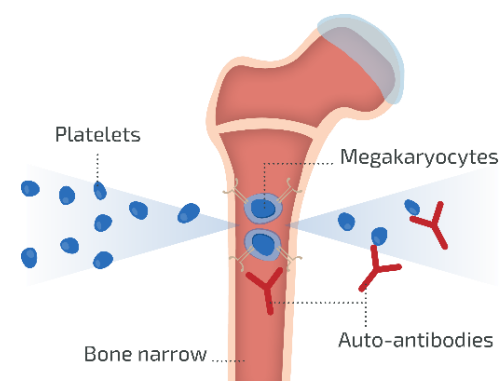
- Limited treatment options
  - Multiple iterations on corticosteroids & IVIg
  - Immunomodulatory agents
  - TPO mimetics & splenectomy
- Severe side effects from current treatments: Anaphylaxis, anorexia, backache, cancer, cataracts, depression, diabetes, fatal hemolysis, hepatitis, hypertension, infections, infusion-related reactions, leukoencephalopathy, nausea, osteoporosis, psychosis, sweating, neutropenia, thrombosis, vomiting, weakness
- Romiplostim and Eltrombopag, last-line therapies for ITP and have generated global revenues of \$584 million<sup>(2)</sup> and \$635 million<sup>(3)</sup> in 2016



## Immune Thrombocytopenia Cause

Autoantibodies (IgG type) destroy blood platelets:

- Increased platelet removal
- Reduced platelet production

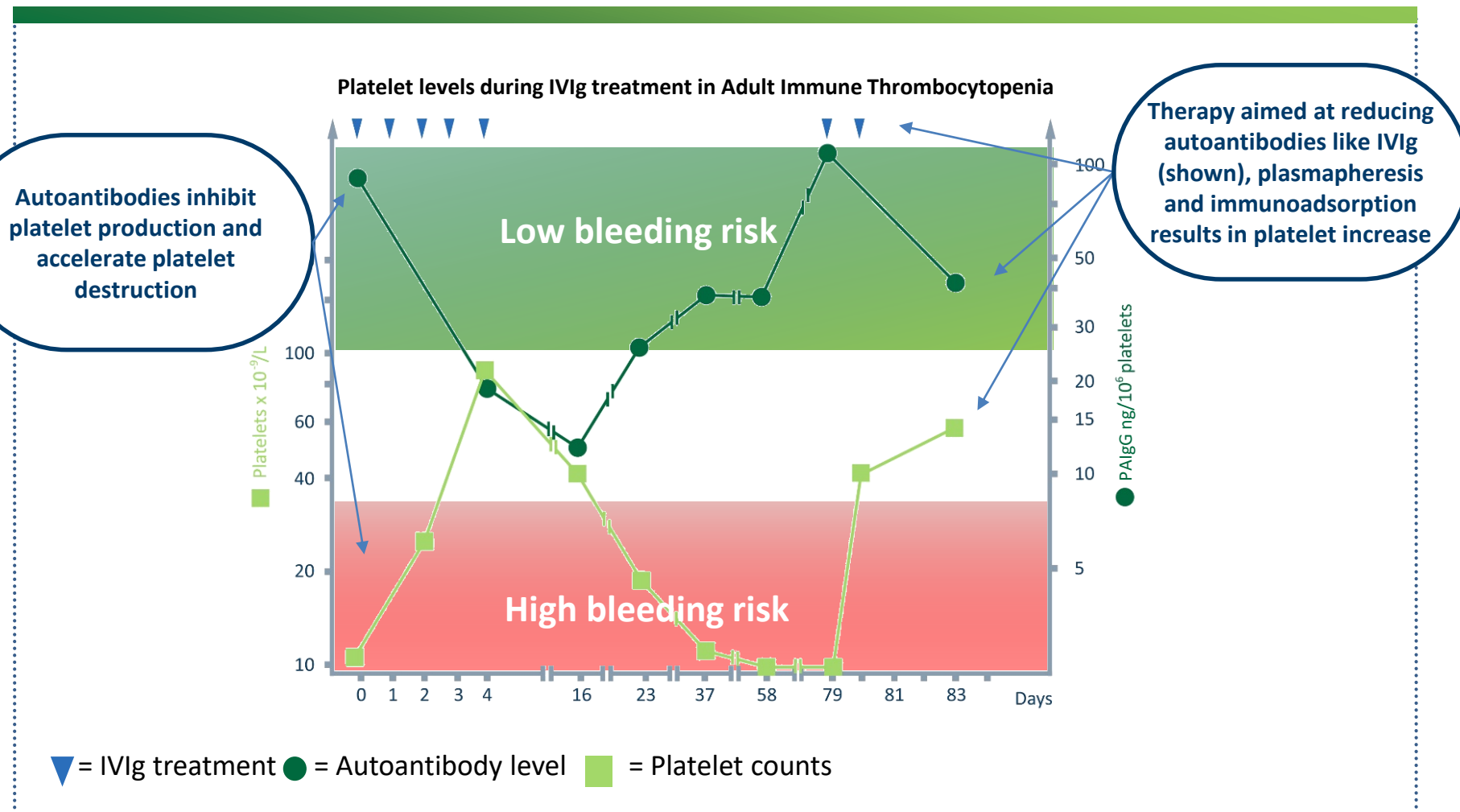


(1) Saleh et al. 2015, Curr Med Res Opin.; Terell et al. 2012, Am J Hematol.; Grace et al. 2012, Pediatr Blood Cancer.

(2) Amgen Inc. 2016, Form 10-K.

(3) Novartis Annual Report 2016

# Autoantibody Levels (IgGs) Correlate With ITP Disease Score



## What is Pemphigus Vulgaris?

- Chronic, severe – potentially life-threatening – auto-immune disease
- ~ 17,000 people treated (US)<sup>(1)</sup>
- Mucosal and skin blisters leading to pain, difficult swallowing, skin infection
- Disease severity directly correlates to pathogenic IgG levels against desmoglein-1 (skin involvement) and desmoglein-3 (mucosal involvement)<sup>(2)</sup>
- Patients cycle through periods of remission and relapse for extended periods

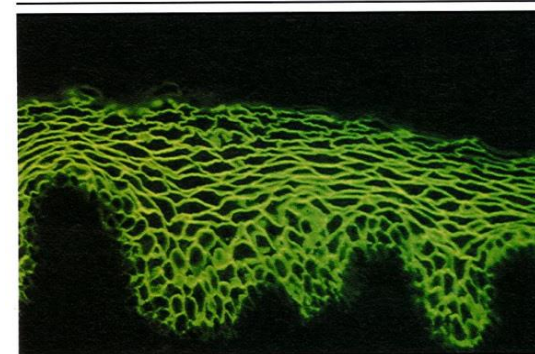
## Limited current treatment options

- Current disease management comes with significant side effects and impacts QoL
  - High dose of corticosteroids and chronic immunosuppression (AZA, MFM)
  - Rituximab, IVIg, immunoadsorption and plasma exchange used for severe or refractory patients (10%), but not perceived as curative
- Treating physicians require new effective therapies with rapid onset of action that are safe
- Rituximab therapy shows slow onset of action, risk of developing serious adverse events and significant relapse rate <sup>(2) (3) (4)</sup>



## Pemphigus Vulgaris Cause

Diagnosis based on presence of pathogenic autoantibodies targeting desmoglein-1 and -3 in the skin



Auto-antibodies (predominantly IgG4 type) sterically hinder desmosomal adhesion and assembly – no complement involvement or immune effector activation<sup>(2)</sup>

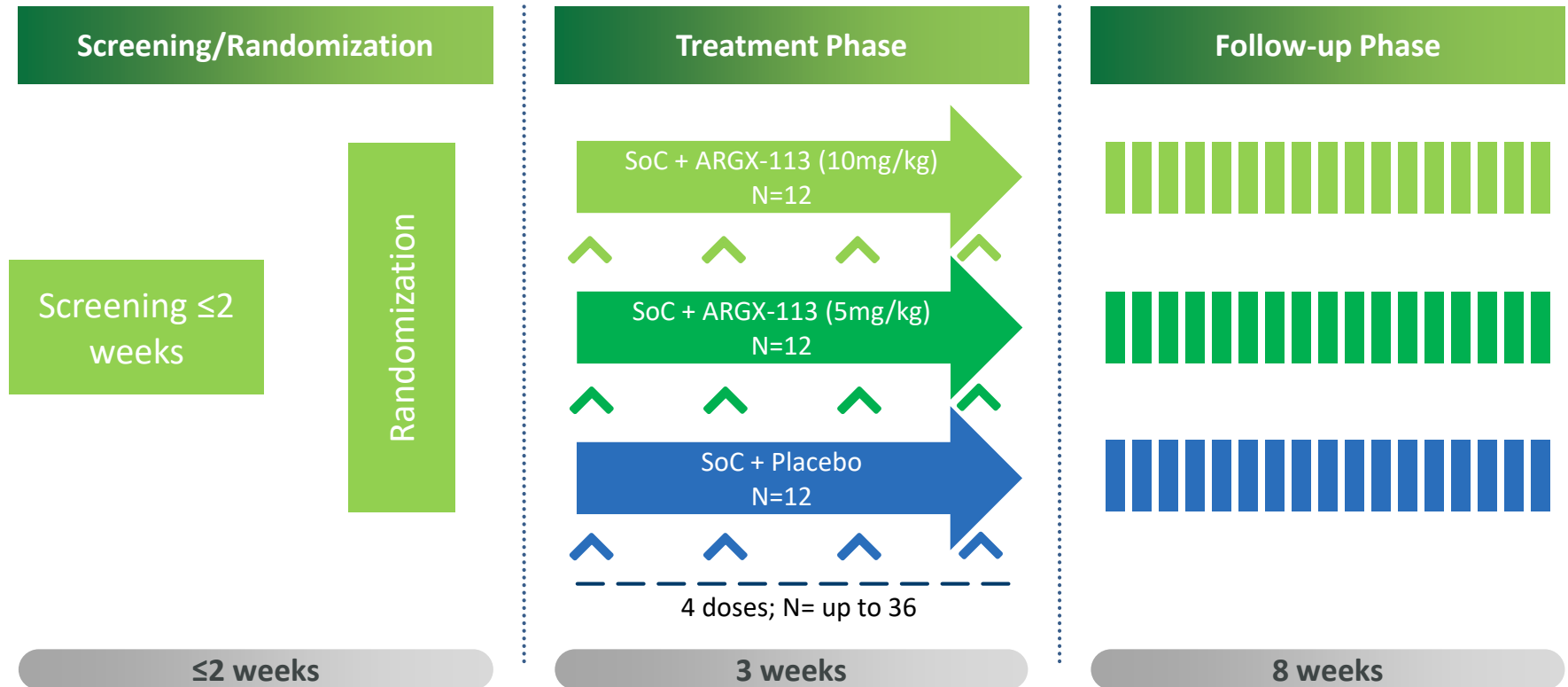


(1) Collective Acumen study (2) Kasperkiewicz et al. 2017, Nature Reviews

(3) Colliou et al. 2013, Autoimmunity (4) Joly et al. 2017, Lancet

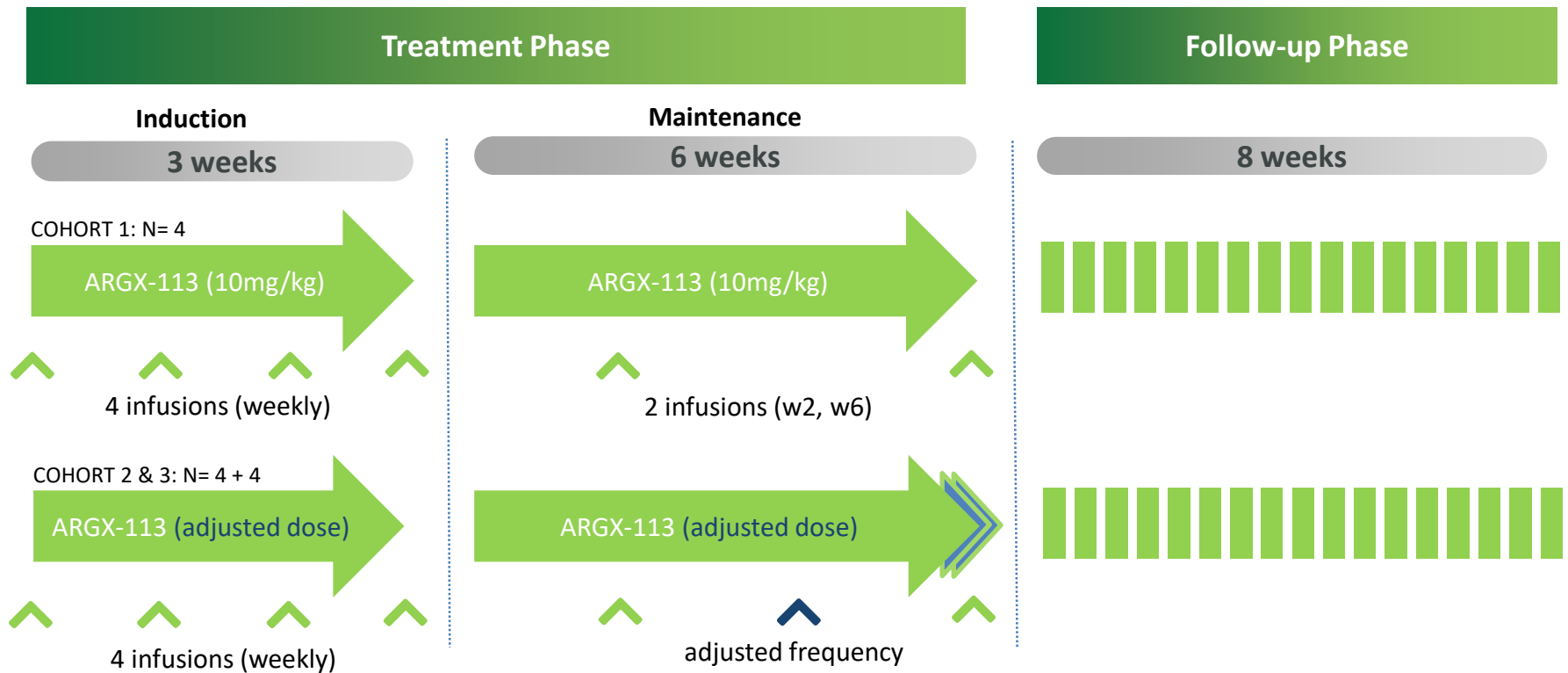
# ARGX-113 in ITP: Phase 2 Trial Design

Study  
50% recruited  
Sept 2017



- Population: ITP patients with platelet levels  $< 30 \times 10^9/L$
- Primary Objectives: Evaluate safety and tolerability
- Secondary Objectives: (i) Evaluation of efficacy based on platelet counts, use of rescue treatment & bleeding events  
(ii) Assess pharmacokinetics (PK) and pharmacodynamics (PD) effect  
(iii) Evaluate immunogenicity





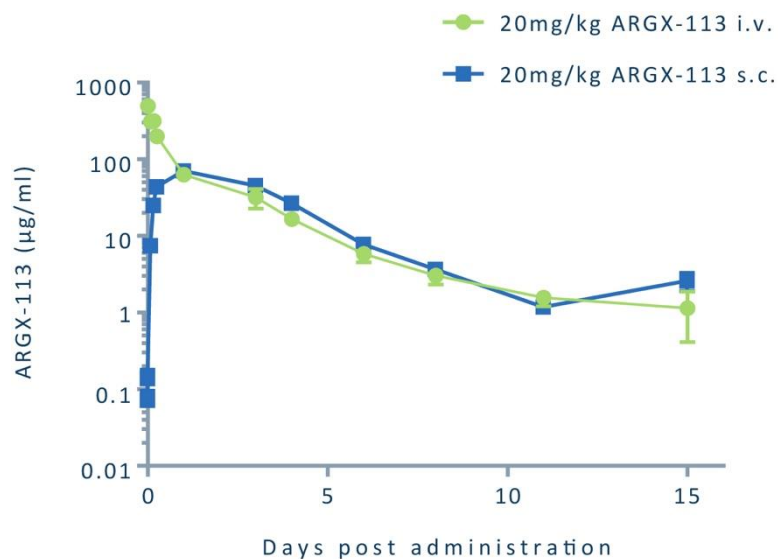
- Patients enrollment divided in 3 sequential cohorts
- IDMC recommendations for cohorts 2 & 3:
  - Change of dose (max dose of 25mg/kg)
  - Frequency of administration at maintenance (max 2 extra doses after each cohort)
  - Expansion of maintenance duration



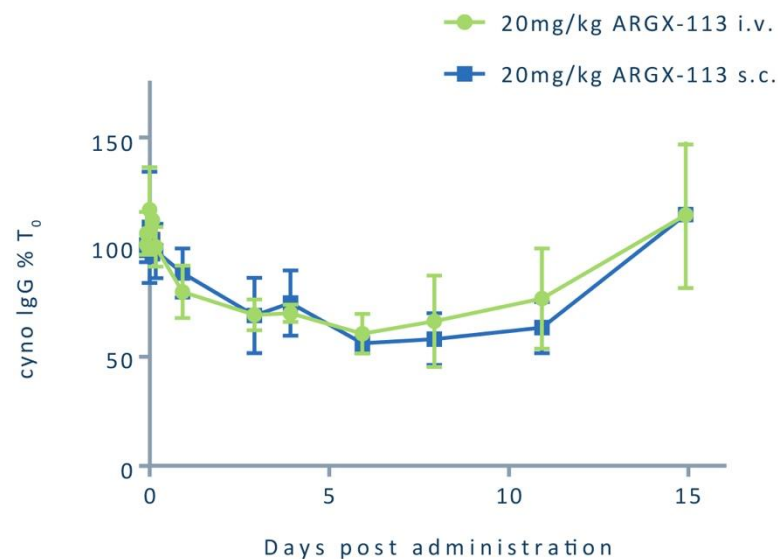
# ARGX-113: Feasibility of SubQ Dosing

Exploring SubQ formulations for larger patient populations (chronic, ex-hospital)

PK single dose administration: IV vs SubQ (in cyno)



PD single dose administration: IV vs SubQ (in cyno)



- Comparable PK and PD of IV versus SubQ dosing in preclinical studies demonstrated
  - Comparable half life
  - Favorable bio-availability of the compound in SubQ dosing (> 75%)
  - Comparable reduction of IgGs with single dose; up to 50%

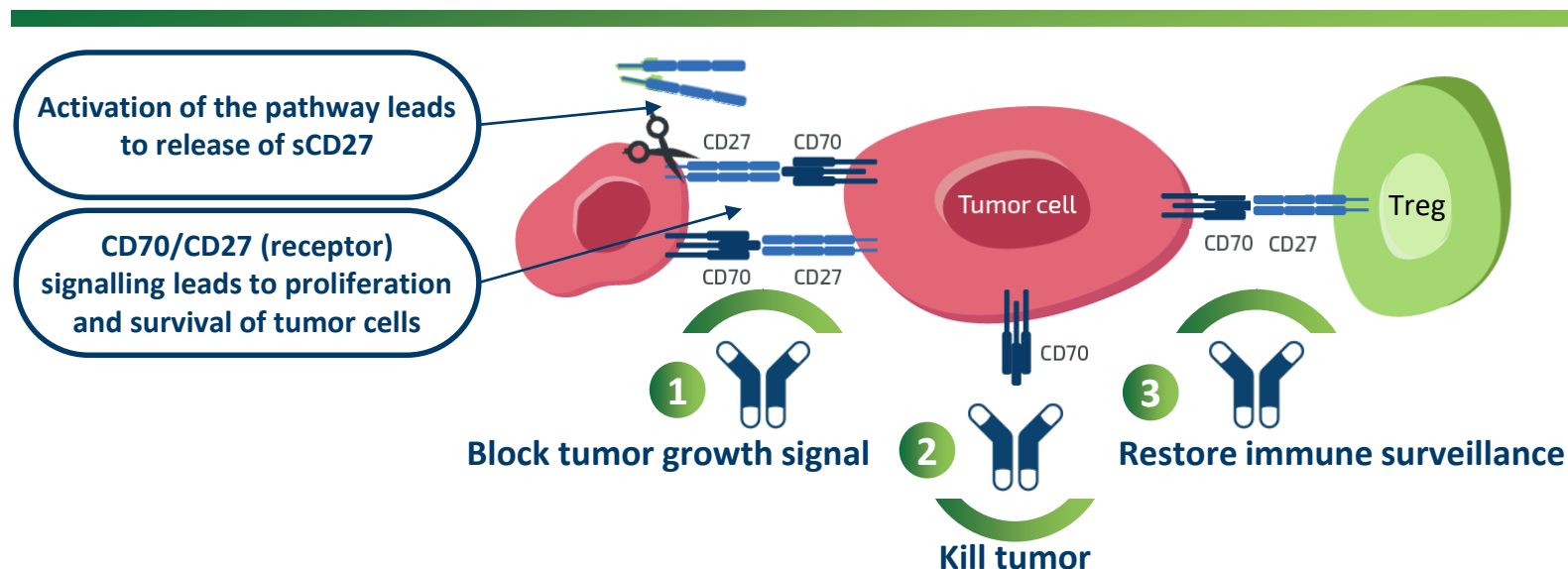


# **ARGX-110: Phase 1 / 2 Mono & Combo Therapy**

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# ARGX-110: Lead Cancer Program Based On Novel Target CD70

Three distinct modes of action to target CD70+ tumor cells



- ARGX-110 is a SIMPLE Antibody™, equipped with POTELLIGENT® Fc engineering technology
- ARGX-110 targets CD70 to block CD27 interaction, kill CD70 expressing cells and restore immune surveillance
- Soluble CD27 is a biomarker
- Phase 1: encouraging safety & tolerability profile and promising preliminary signs of efficacy in CTCL
- Focus on two rare & aggressive hematological tumors: CTCL and newly diagnosed AML / high-risk MDS
  - Interim results from dose escalation part of Phase 1/2 AML/MDS trial expected YE:2017
  - Interim POC data from Phase 2 CTCL trial expected YE:2017

## What is Cutaneous T-Cell Lymphoma?

- Rare and incurable sub-type of T-cell lymphoma
- Prevalence (US & Canada): ~ 30,000 & Incidence (US): ~ 3,000<sup>(1)</sup>
- Patients typically diagnosed in their 60s
- Mycosis fungoides (50%), Sézary syndrome most common types<sup>(2)</sup>
- Symptoms include: severe rash, itching, tumor, skin infections
- Skin infection often cause of death

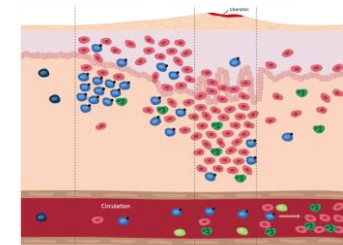
## Limited current treatment options

- Initial treatment includes topical dermatology agents (corticosteroids, PUVA, e-beam therapy)
- Advanced stage patients treated with systemic oncology agents which are only moderately effective and not curative
  - Targretin bexarotene (oral) 1st line option – ease of administration
  - Istodax romidepsin (ORR: 34%, mDoR: 13-15 mos)<sup>(3)</sup> 2<sup>nd</sup> line – complicated dosing and myelosuppression
  - Antifolates (methotrexate, pralatrexate), Campath, chemo (Doxil, CHOP, etc)
- Heavily pre-treated, elderly patients are unfit for aggressive chemotherapy or stem cell transplantation
- Significant unmet need for effective, tolerable, long-lasting CTCL treatments



## Cutaneous T-Cell Lymphoma Cause

- Disease aetiology unknown
- Potentially caused by aberrant stimulation of CD4+ T-cells by Langerhans cells, specialized antigen presenting cells in skin
- Malignant T-cells become independent of stimulation by LCs and invade other tissues
- Sézary syndrome is a leukemic variant of CTCL



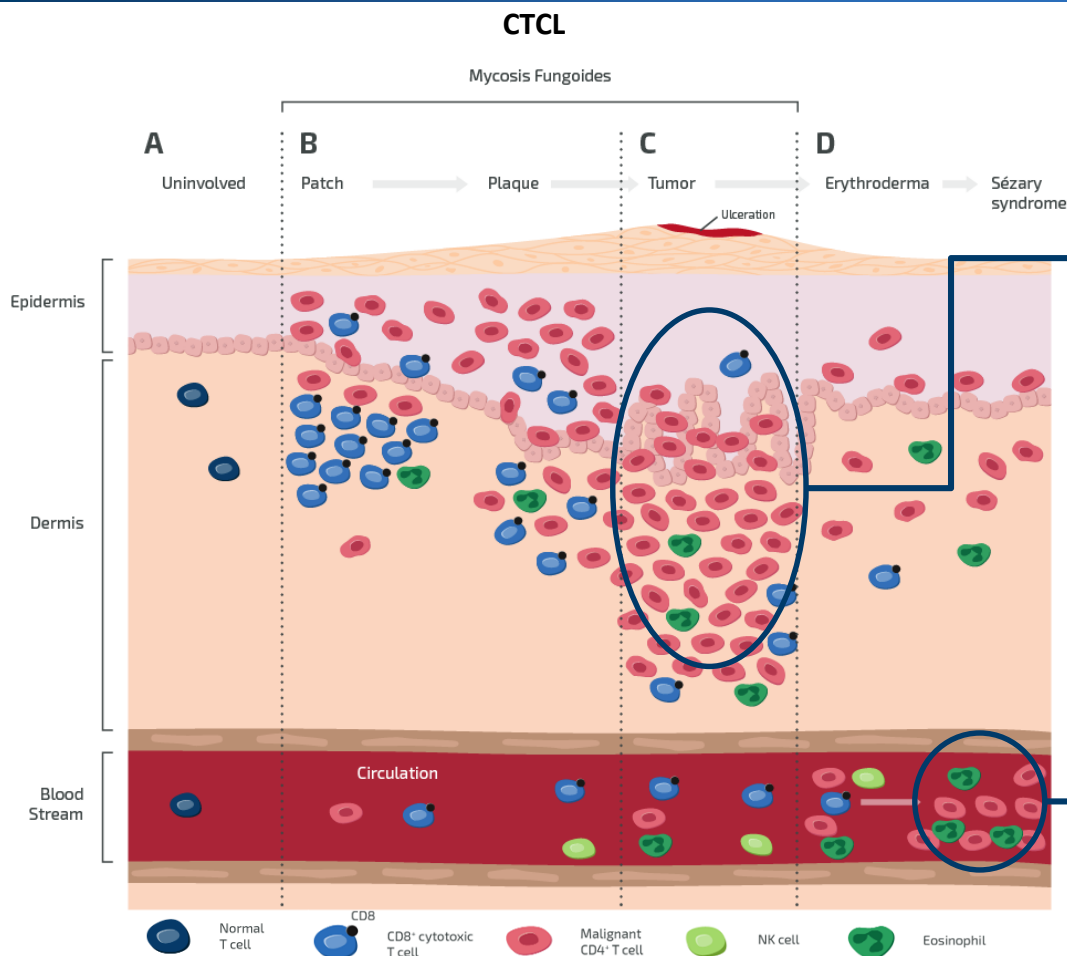
(1) Cutaneous Lymphoma Online Learning Center: <http://www.clfoundation.org/online-learning-center/disease/faq/who-gets-cutaneous-lymphoma-how-many-people-have-it>.

(2) Lymphoma Research Foundation: <http://www.lymphoma.org/site/pp.asp?c=bkLTKaOQLmK8E&b=6300151>

(3) <http://www.istodax.com/hcp/ctcl/study-design/efficacy>

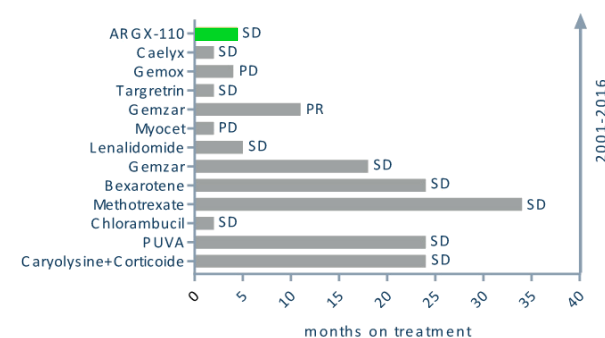
# ARGX-110 In Cutaneous TCL

Phase 1-2: Typical patients are elderly and failing multiple lines of previous treatment



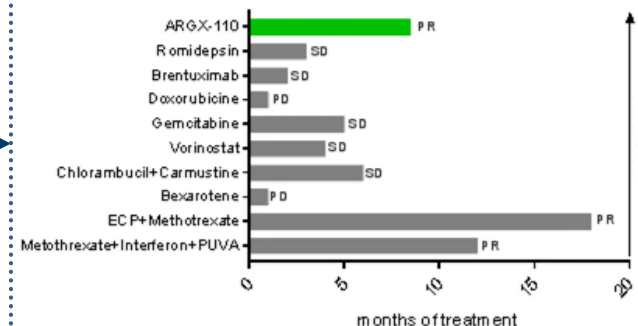
## Example Mycosis fungoides (MF) patient

### Treatment & best response



## Example Sézary Syndrome (SS) patient

### Treatment & best response

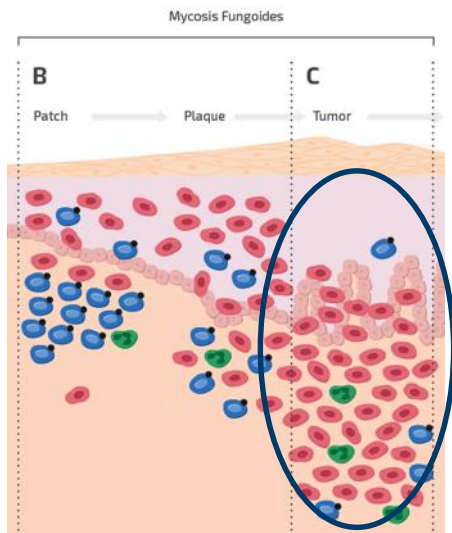




# ARGX-110: Effect On Malignant Cells In Skin

Patient example 1: Cutaneous TCL – mycosis fungoides (MF)

## Typical Mycosis fungoides (MF) patient



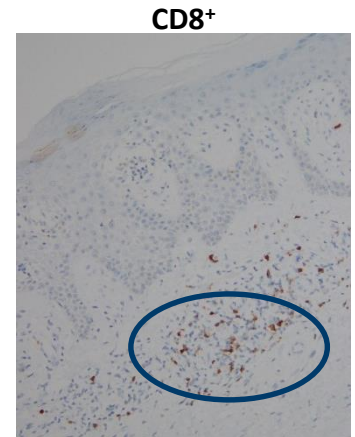
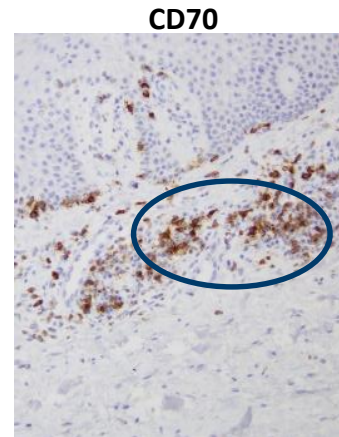
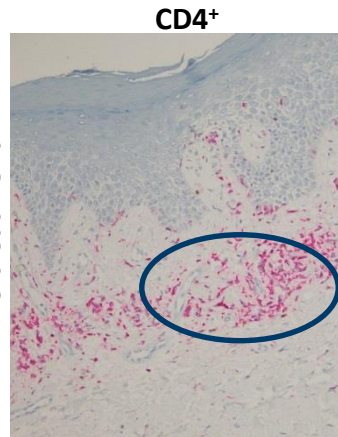
Patient	67 year old male CTCL-MF, diagnosed 2001
Tumor	Skin T4, Nx, M0, B0 (Stage IIIA)
Doses	6

## Decrease of CD4+ malignant T-cells

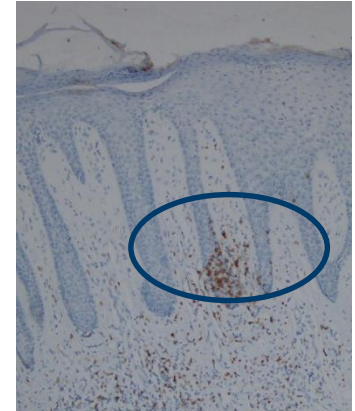
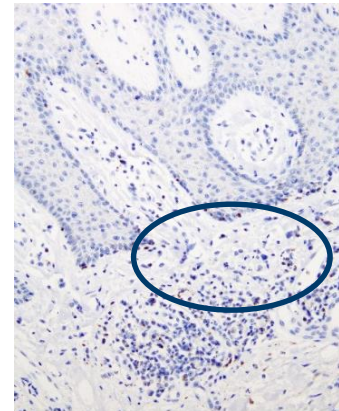
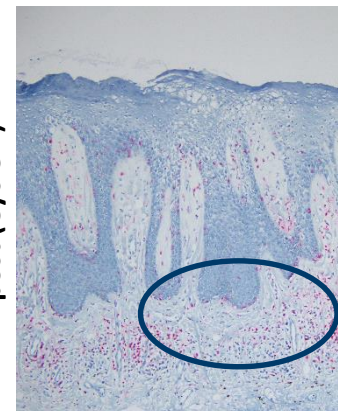
## Depletion of CD70+ malignant T-cells

## Infiltration of CD8+ T-cells

Pre-treatment



post (Cycle 2)



# ARGX-110: Improved mSWAT & Skin Lesions

## Patient example 2: Cutaneous TCL – mycosis fungoides (MF)

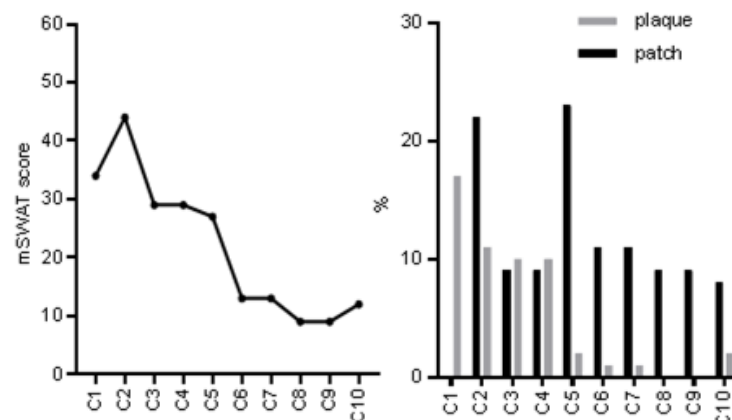


- 79 year old female with CTCL-MF, diagnosed June 2007
- Tumor: Skin T2, NO, MO, BO (stage IB)
- Doses: 16 (1 mg/kg q3w)

**Pre treatment**



**At cycle 6**



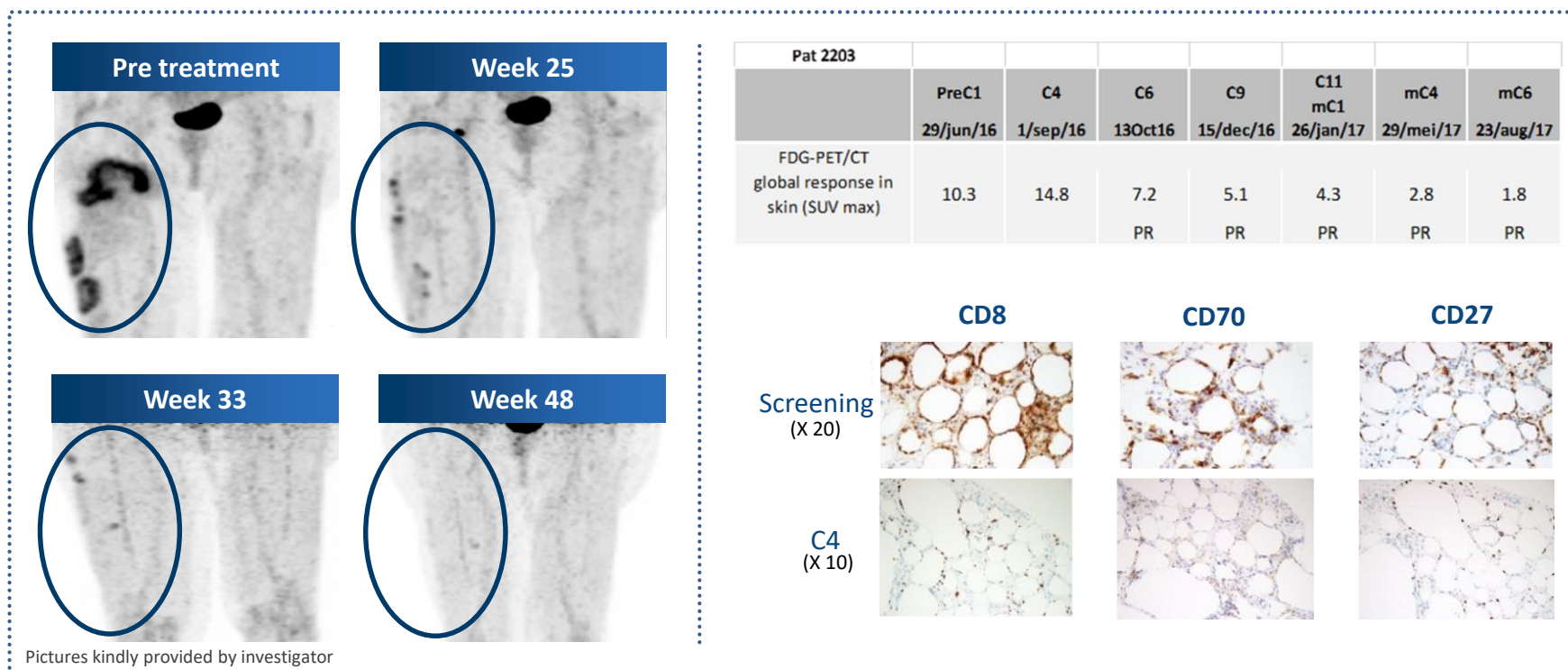
- 60% reduction of mSWAT score constitutes a partial response (PR)
- Decrease in surface area of cutaneous tumor lesions
- Lesions improve from plaques to patches
- Some lesions completely resolved

# ARGX-110 Induces Complete Response

## Update on panniculitis patient



- 84 year old female, diagnosed June 2015
- Tumor: Skin T3, nodal NO, visceral MO, blood BO
- Doses: 10 (1 mg/kg q3w) + 8 (5 mg/kg q6w)

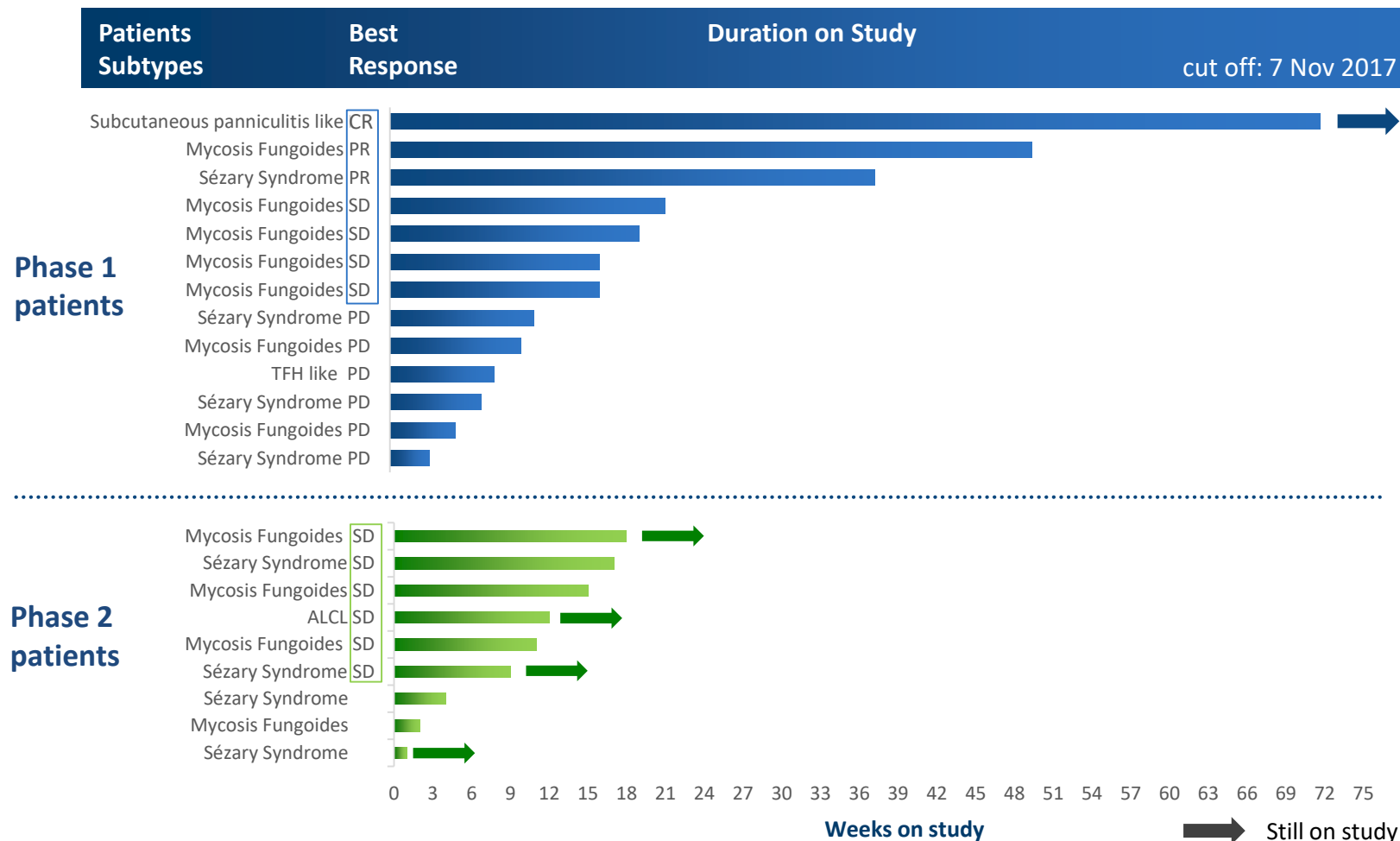


- Partial response after 6 doses (dose 1 mg/kg) in maintenance (5 mg/kg /6 weeks) since January 2017
- Complete response after 17 doses (dose 5mg/kg)
- The patient is still on a maintenance dose of 5 mg/kg q6wk



# Disease Control In 59% (13/22) Of RR-CTCL patients

Duration on study



- Encouraging signs of clinical activity
- 5 patients still on study at 5 mg/kg

## What is Acute Myeloid Leukemia?

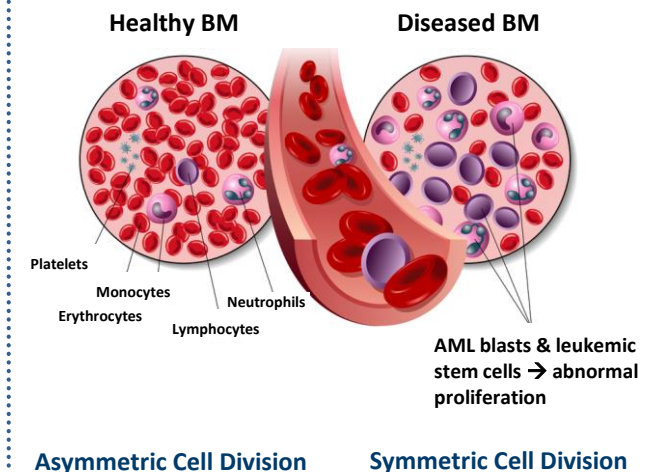
- Rare hematologic cancer characterized by **excessive proliferation of myeloid stem cells** and their **failure to properly differentiate into mature white blood cells**
- Symptoms include: weight loss, fatigue, fever, night sweats, loss of appetite, shortness of breath, easy bruising, infections, bleeding
- Disease progresses very rapidly and is fatal if left untreated
- ~22,000<sup>(1)</sup> new cases per year in the U.S. — **2<sup>nd</sup> most common leukemia subtype** in adults
- Generally a **disease of the elderly** — 60% of diagnosed patients are older than 60

## Limited current treatment options

- **Elderly, frail patients** are typically unfit for high dose chemotherapy — receive **palliative treatment with hypomethylating agents**
  - Median survival of 7 – 10 months
  - 5 year survival rate of ~6%<sup>(2)</sup> for patients over 65
- Younger patients (<45yr) typically get aggressive chemotherapy (“7+3” regimen) to induce remission followed by stem cell transplant
  - 5 year survival rate of ~57%<sup>(2)</sup> for patients under 45
- **Significant need for safer and more effective treatment options**



## Effects of AML on Bone Marrow

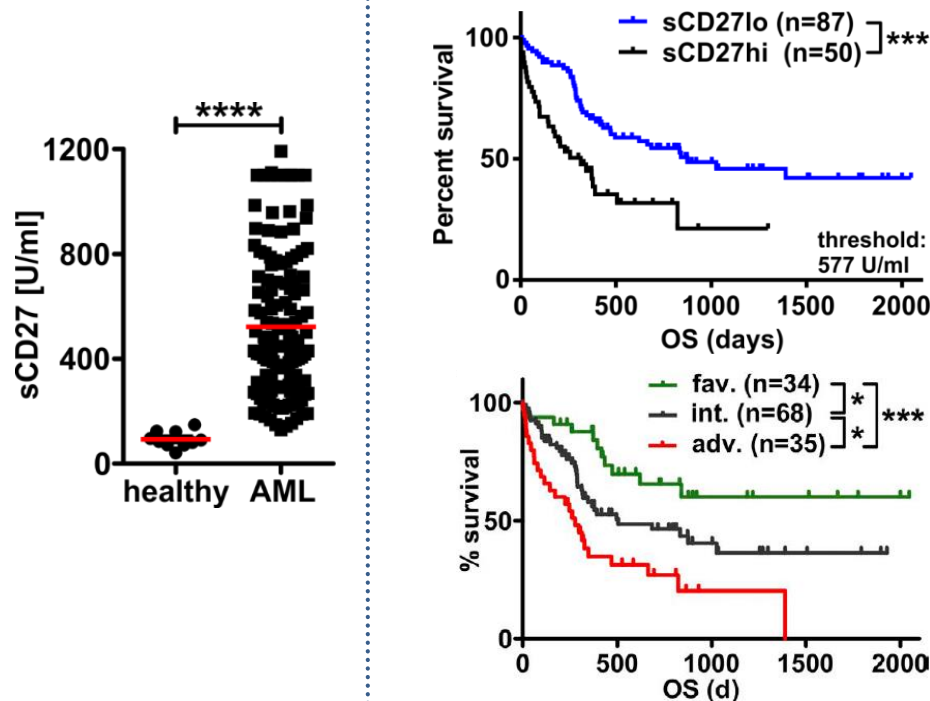


(1) American Cancer Society: <http://www.cancer.org/cancer/leukemia-acutemyeloidaml/detailedguide/leukemia-acute-myeloid-myelogenous-key-statistics> .  
(2) National Cancer Institute: Howlader et al. (eds). SEER Cancer Statistics Review, 1975-2013, National Cancer Institute. Bethesda, MD, [http://seer.cancer.gov/csr/1975\\_2013/](http://seer.cancer.gov/csr/1975_2013/), based on November 2015 SEER data submission, posted to the SEER web site, April 2016. Table 13.16

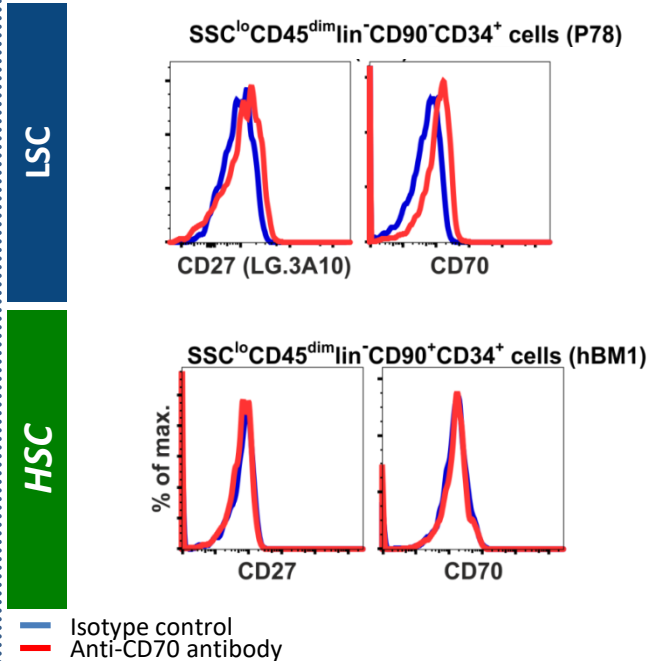
# CD70 Provides Unifying Rationale Across Risk & Age Classes In AML

Potential to selectively target leukemic stem cells in AML patients

## Elevated sCD27 serum levels correlate with poor prognosis



## CD70 is a selective LSC marker

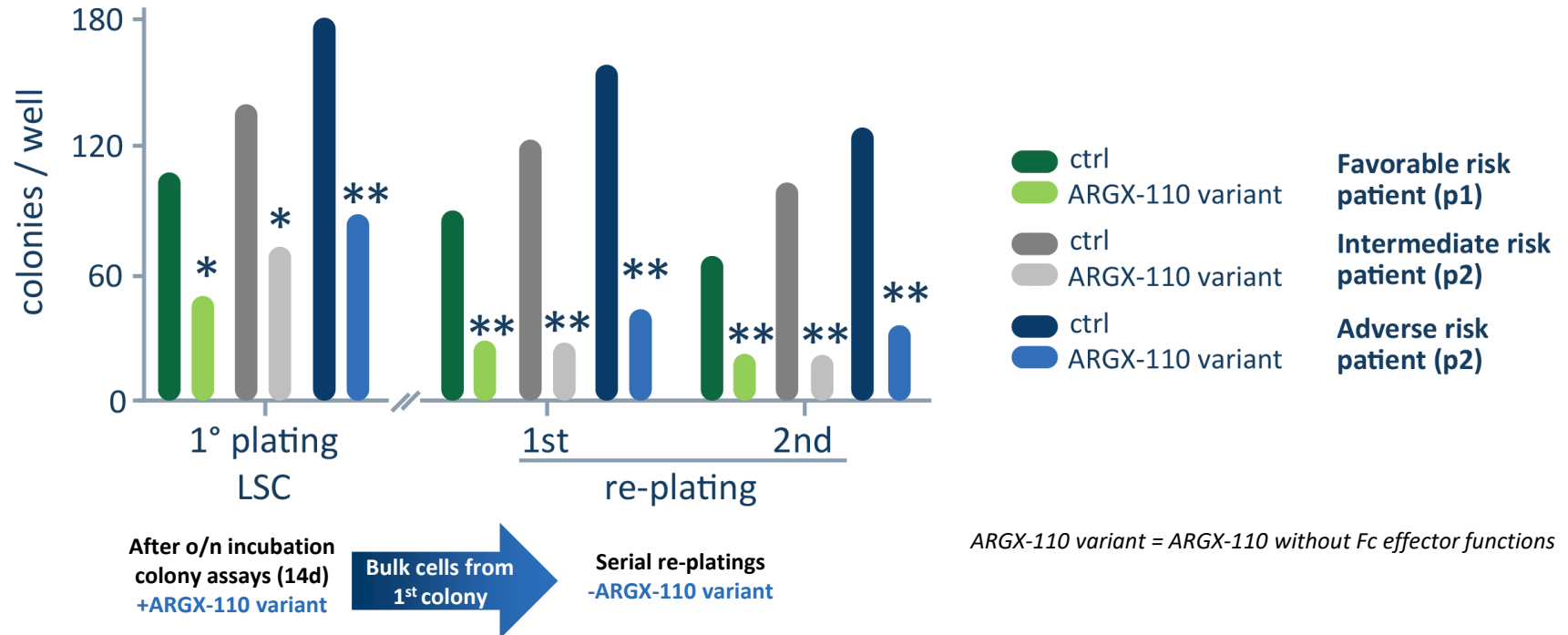


Legend: adv., adverse; CI, confidence interval; fav., favorable; int., intermediate; OS, overall survival. Statistics: left: one-way ANOVA; middle: log-rank test. \*, P < 0.05; \*\*, P < 0.01; \*\*\*, P < 0.001.

- Elevated sCD27 serum levels in all newly diagnosed AML patients, regardless of risk or age categories
- sCD27 levels are an independent negative prognostic marker in all newly diagnosed AML patients
- CD70 expressed on ~86-100% of AML blasts, majority of malignant cells are CD70/CD27 double-positive
- CD70/CD27 selectively overexpressed on leukemic stem cells (LSCs), not on hematopoietic stem cells (HSCs)

# ARGX-110: Inhibits LSC Proliferation In Lasting Fashion

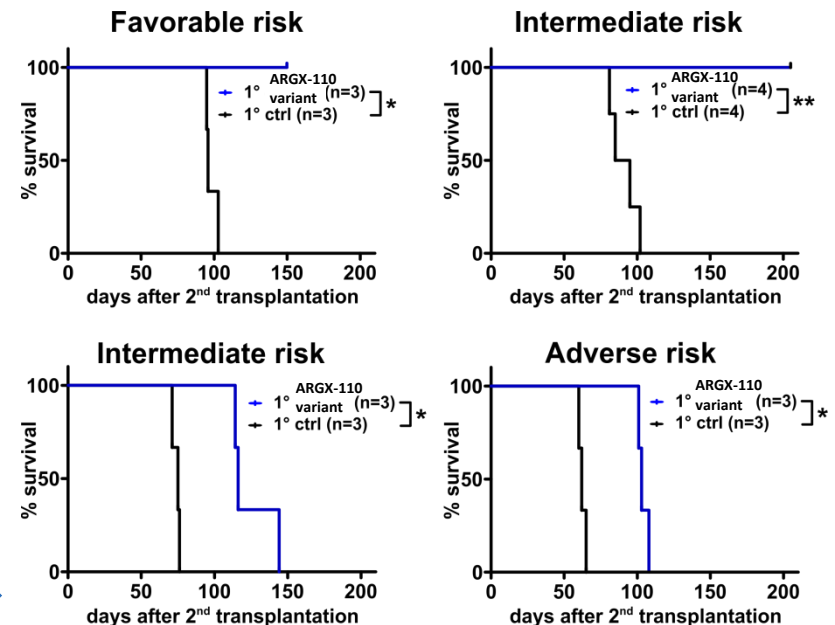
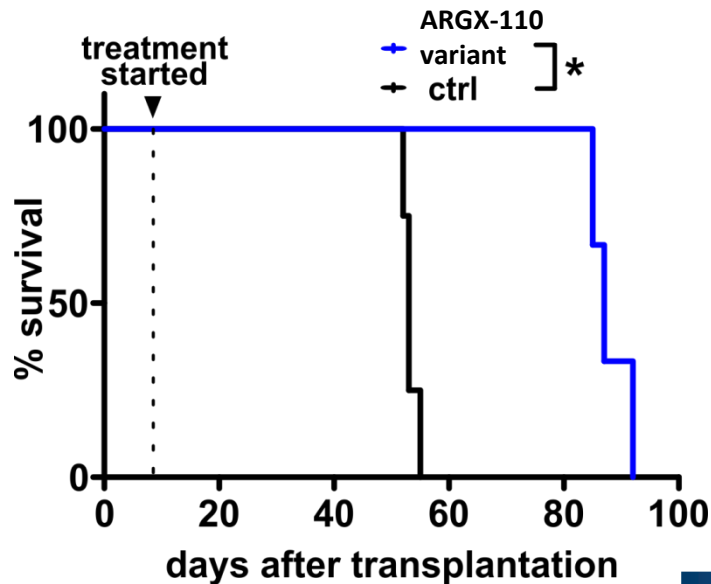
Long-term effects *ex vivo*



- Reduces LSC colony formation across patient risk categories (favorable/intermediate/adverse risk)
- Reduces LSC numbers as determined in serial re-plating experiments
- Blocking CD70 results in: (1) lasting down-regulation of stem cell genes (2) increasing myeloid differentiation

# ARGX-110: Curative Potential Of Monotherapy In Mouse Model

Shown to reduce LSCs, increasing survival in AML model



Initial in vivo treatment  
+ARGX-110 variant

Grafting Whole Bone Marrow cells from treated  
into new mice (14d after start of treatment)

Transplant, evaluation  
-ARGX-110 variant

- Increased survival after secondary transplantation of AML BM cells from primary recipients transiently treated with ARGX-110 variant
- Increased survival observed for AML blasts taken from all 3 AML risk categories (fav/int/adv)

## Phase 1 – Dose escalation

Safety and tolerability

We are here

Vidaza = 75 mg/m<sup>2</sup> (standard of care)

10 mg/kg

N = 3+3

3 mg/kg

N = 3+3

1 mg/kg

N = 3+3

N = up to 18

## Phase 2 – Proof-of-Concept

Efficacy

selected ARGX-110 dose

N = 15

selected ARGX-110 dose

N = 9 – (3-6 from Ph 1)

N = up to 21

- Hypomethylation agents such as Azacitidine increase CD70 expression<sup>1</sup>
- Population: untreated AML & high risk of myelodysplastic syndrome (MDS)\*, eligible for AZA
- Design: open-label, non-controlled, non-randomized



\*Some Myelodysplastic Syndrome (MDS) patients are at high risk of developing AML; MDS affects bone marrow cells, reducing their ability to produce red & white blood cells  
(1) Zhou et al. 2011, Lupus.

# Non-Transplantable Patients With Intermediate & Adverse Risk and High Blast Count in Bone Marrow

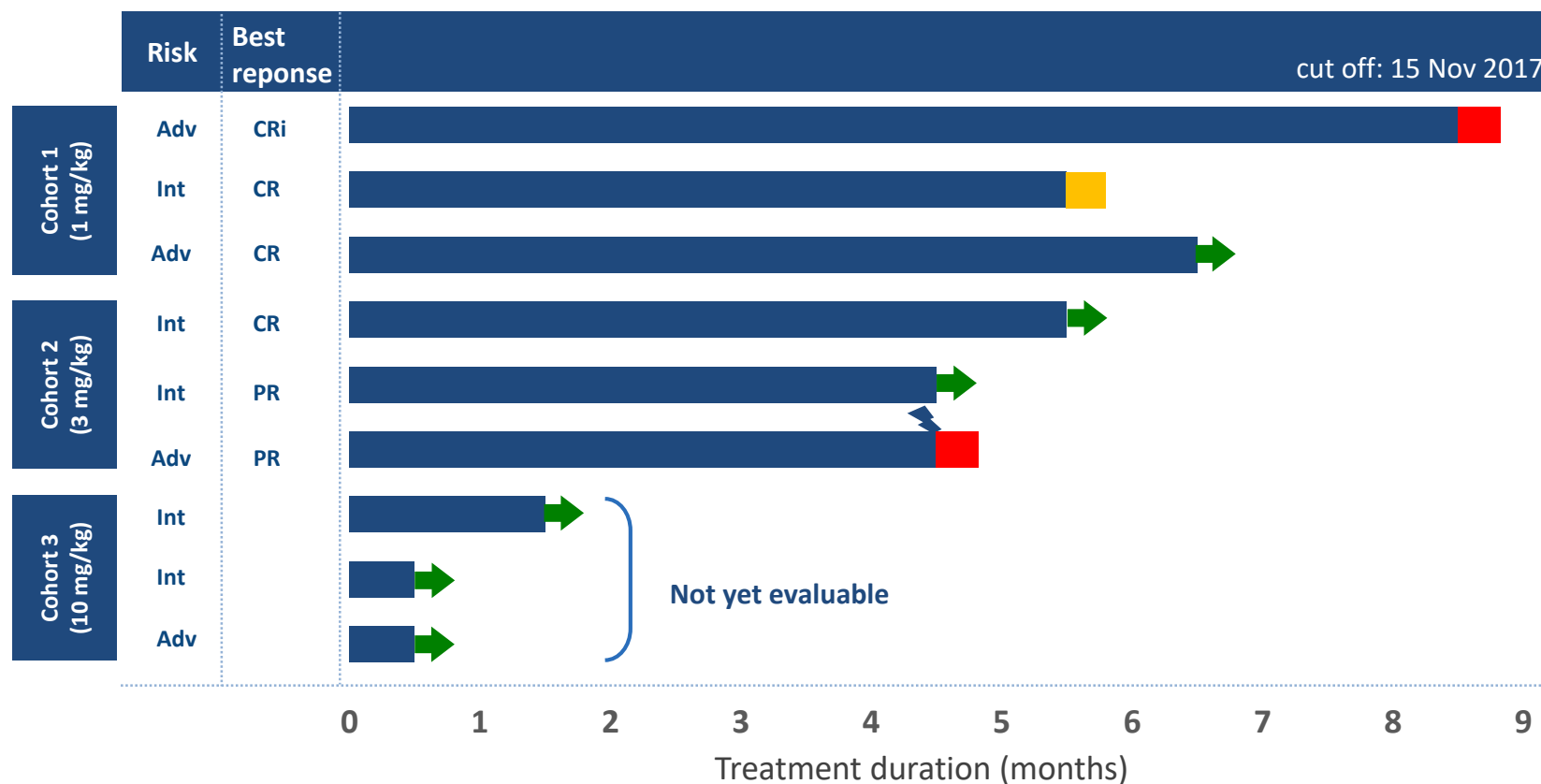
9 newly diagnosed AML patients

Baseline characteristics (N=9)	ARGX-110 + Azacitidine			Total
	1 mg/kg	3 mg/kg	10 mg/kg	
<b>Age</b>				
Median	71 71-80	75 71-84	71 64-75	72 64-84
<b>Gender: Male/Female</b>	2/1	1/2	2/1	5/4
<b>Risk (ELN 2017)</b>				
Intermediate	1	2	2	5
Adverse	2	1	1	4
<b>Blasts in the bone marrow</b>				
Median %	51.3 24-90	40 20-60	70 50-80	53.6 20-90
<b>AML classification (WHO 2016)</b>				
Not other specified		1	3	4
With Myelodysplasia- related changes	2	2		4
Therapy-related myeloid neoplasm	1			1
<b>French-American-British subtypes</b>	M4,M1,M2	M4,M5,M2	M1,M2,M5a	



# Response in 6/6 Evaluable Newly Diagnosed AML Patients

ARGX-110/Aza treatment



- So far, all patients responded (3 CR, 1 CRi, 2 PR)
- 1 patient reached CR and bridged to allogeneic stem cell transplant after 5 cycles
- 6/9 patients are currently still on treatment

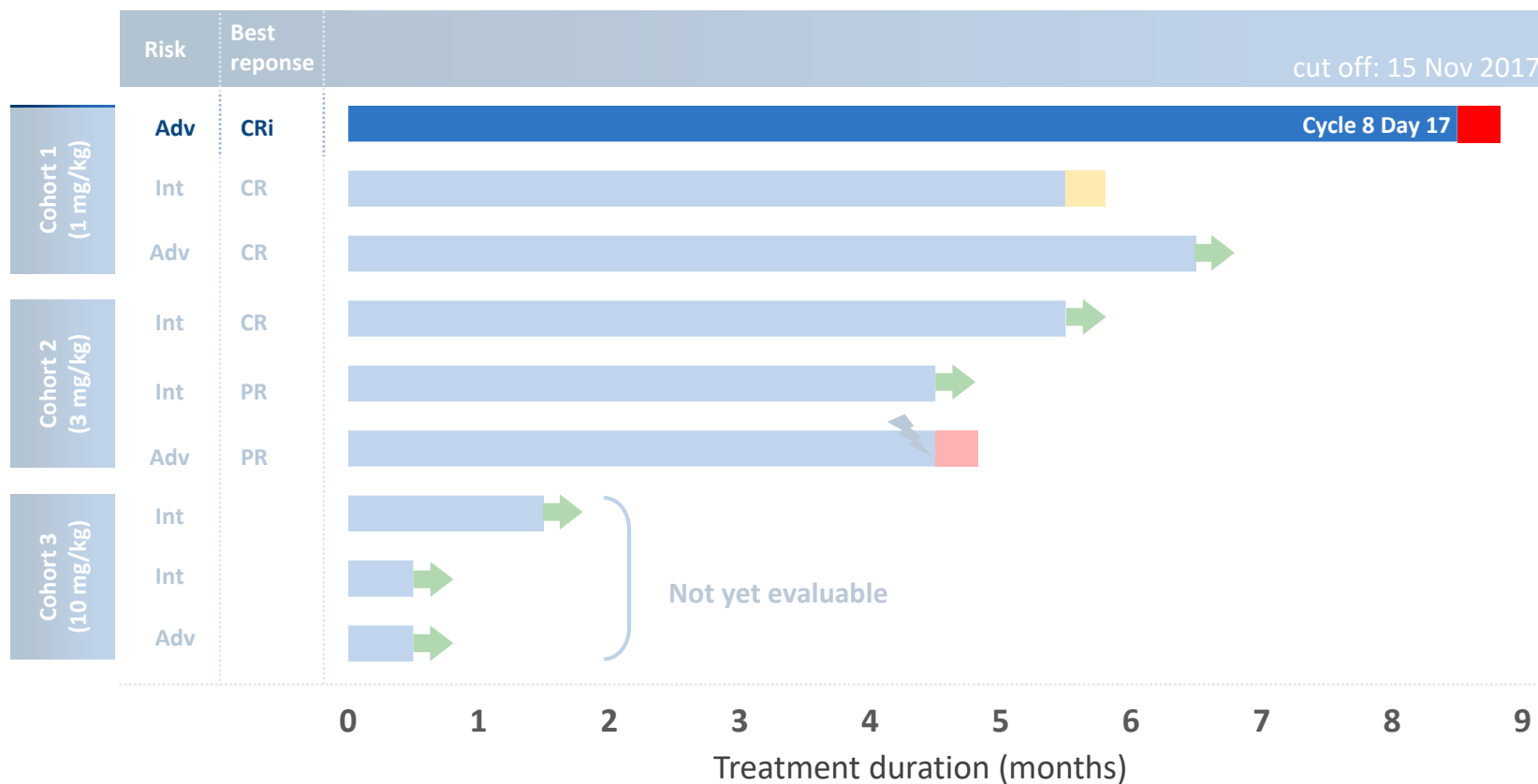
- Study ended
- Patient successfully transplanted
- ⚡ Adverse event leading to discontinuation
- ➡ Ongoing study



# Case 1: Patient Cohort 1 – 1 mg/kg – 8 Cycles on Study

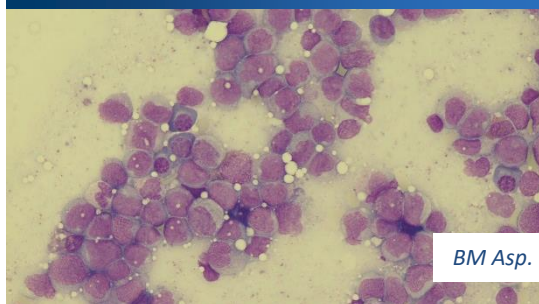


- 80 year old female
- Therapy-related AML, M4; BM ~65% blasts
- Molecular genetics: FLT3-ITD; DNMT3A mut; RUNX1 mut; WT1 mut; cytogenetics: normal

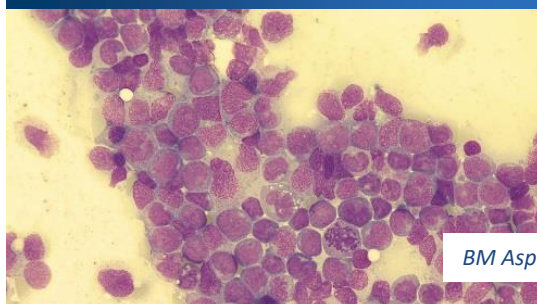


# Case 1: Complete remission with incomplete hematological recovery

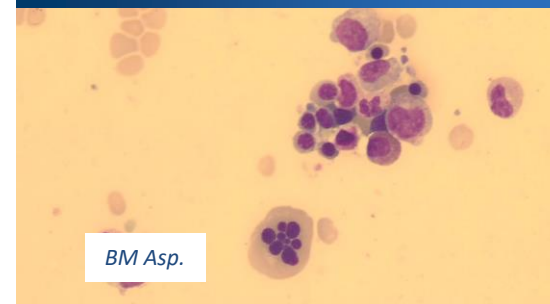
Screening



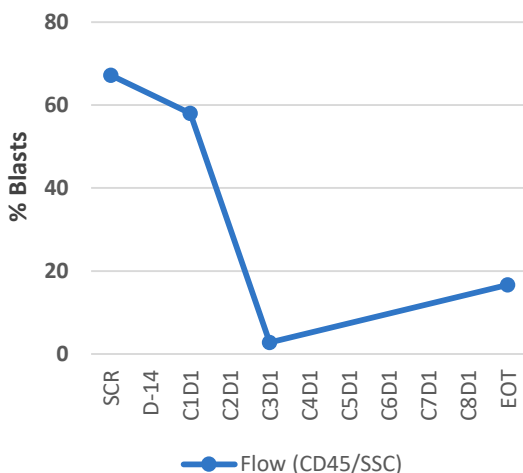
Leukemic blast persistence – (C1D1)



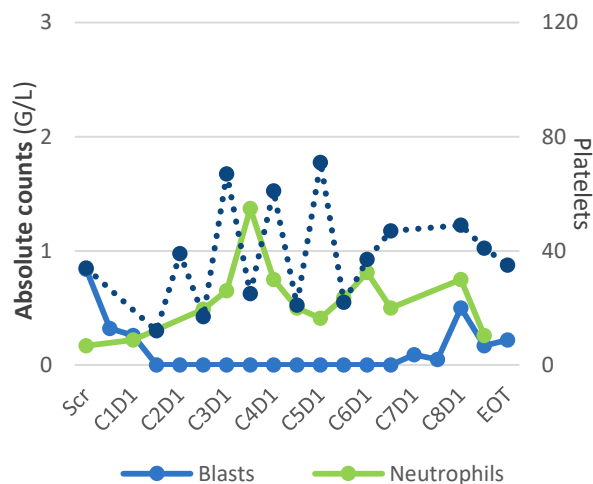
Leukemic clearance – (EOT)



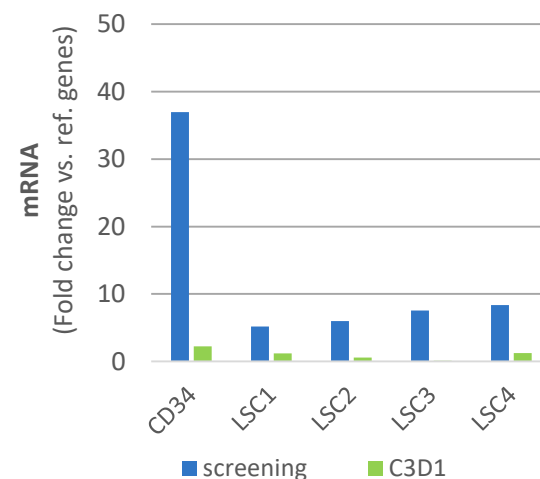
Bone marrow:  
% Blasts, flow cytometry



Blood analysis:  
Absolute counts (G/L)



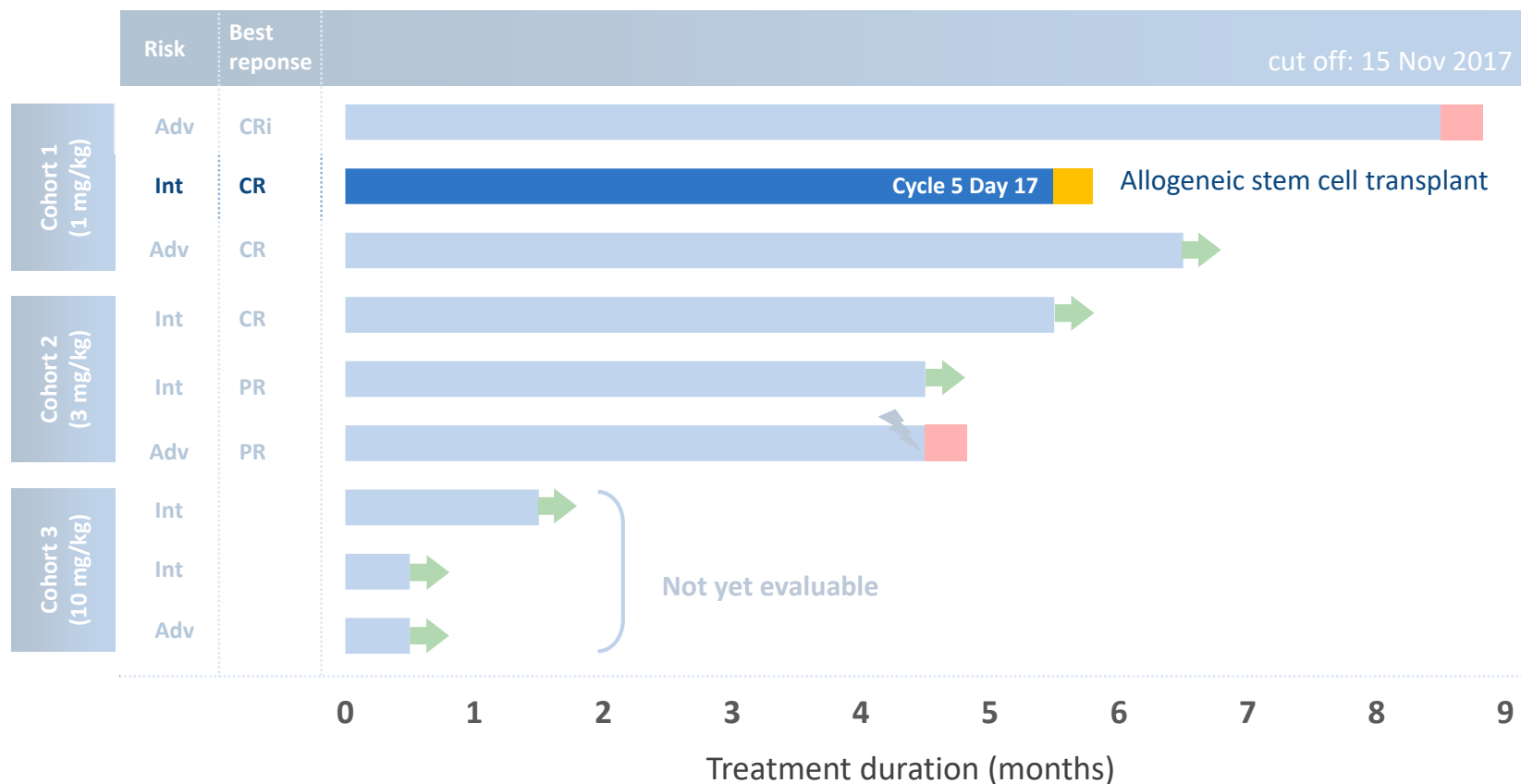
ARGX-110/Aza reduces  
experimental LSC gene signature



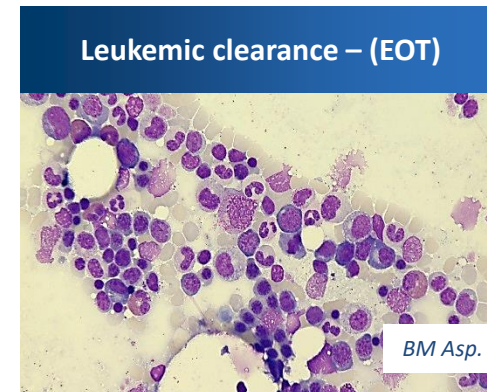
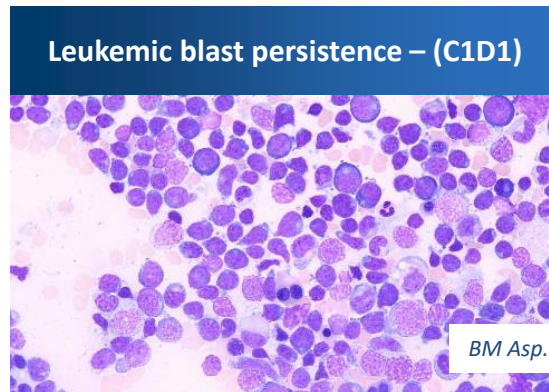
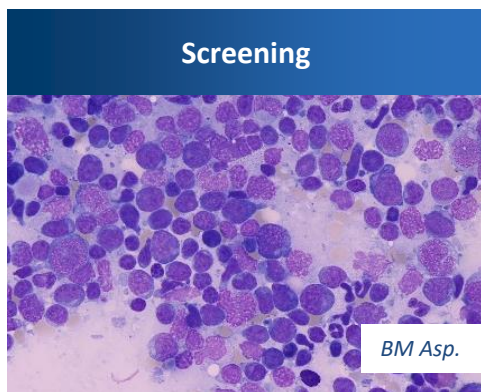
## Case 2: Patient Cohort 1 – 1 mg/kg – 5 Cycles on Study



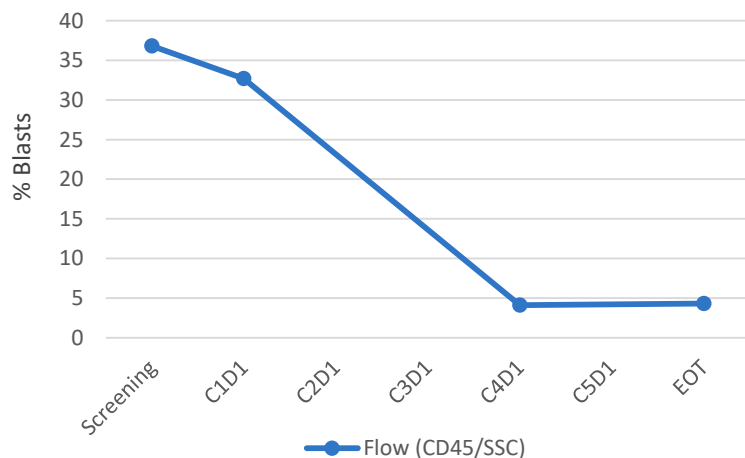
- 75 year old male
- AML with myelodysplasia-related changes, M1/M2; BM ~40% blasts
- Molecular genetics: U2AF1mut; DNMT3Amut; cytogenetics: normal



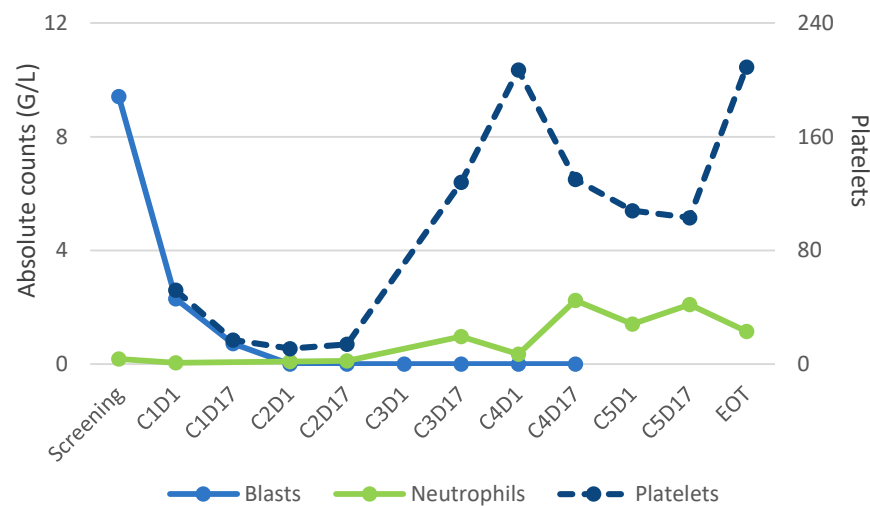
# Case 2: ARGX-110/Aza Induces Complete Remission & Bridges to Transplant



## Bone marrow: % Blasts, flow cytometry



## Blood analysis: Absolute counts (G/L)

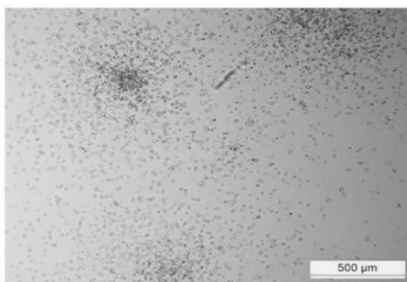


## Case 2: ARGX-110/Aza combo reduces AML stemness

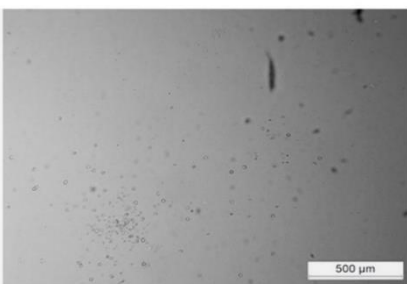
### ARGX-110 monotherapy reduces LSCs outgrowth

White light microscopy (5,000 cells)

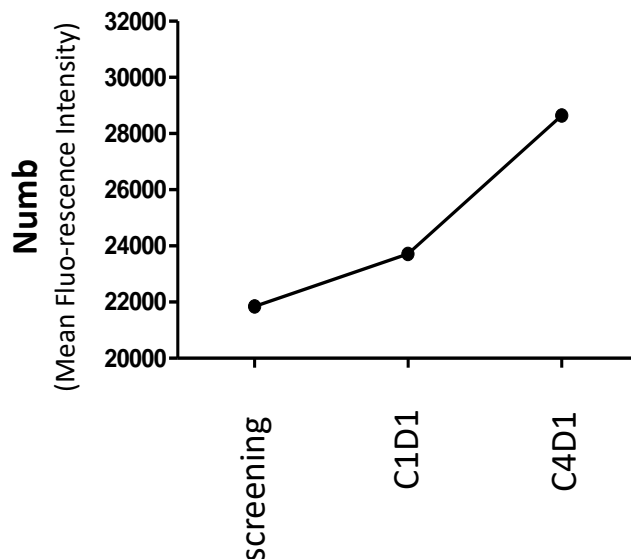
#### Screening



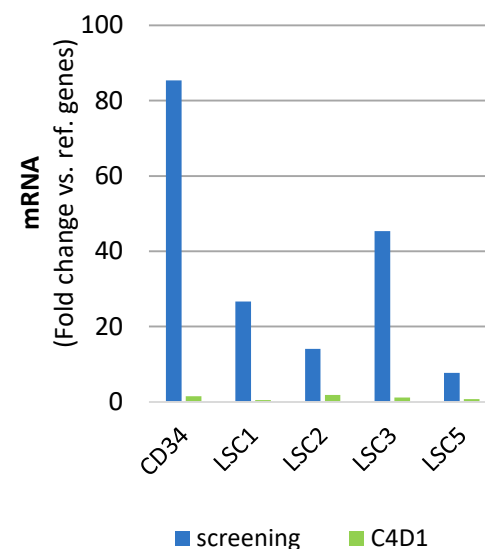
#### ARGX-110: Cycle 1 Day 1



### ARGX-110/Aza increases asymmetric LSC division



### ARGX-110/Aza reduces experimental LSC gene signature



*'It seems ARGX-110 targets mature blasts as well as LSCs – this is very promising' (AML KOL)*

- Significantly reduced leukemic stem cell colony formation
- Increased myeloid differentiation (asymmetric division) of leukemic stem cells
- Reduction of LSC gene signature

# ARGX-110 In Newly Diagnosed AML Patients – Summary

Preliminary data from first 6 patients – additional data needed

## Preliminary clinical data confirm preclinical observations

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### Promising preliminary activity obtained in first set of patients

- 6/6 responders
  - 1 patient bridged to transplantation
- 

### Encouraging safety and tolerability profile

- No exacerbation of azacitidine toxicity
- 

### Highly differentiated drug profile

- CD70 uniformly & selectively expressed
- Driving LSCs into myeloid differentiation

*'In an ideal world, a LSC targeting drug should show response regardless of risk category, should show a better response in de-novo vs R/R patients and should allow for deep and durable responses. ARGX-110 may meet these criteria' (AML KOL)*



# Business development & financials









## Strategic Antibody Collaboration Details

- **GARP** is a protein specifically present on the surface of activated regulatory T-cells (Tregs)
- **AbbVie** has option to
  - obtain exclusive, worldwide license to develop and commercialize ARGX-115
  - fund further GARP-related research by argenx beyond ARGX-115
- **argenx** conducts and funds all R&D through completion of IND-enabling studies
- **argenx** retains rights to combine ARGX-115 with its pipeline programs

## Financial Highlights

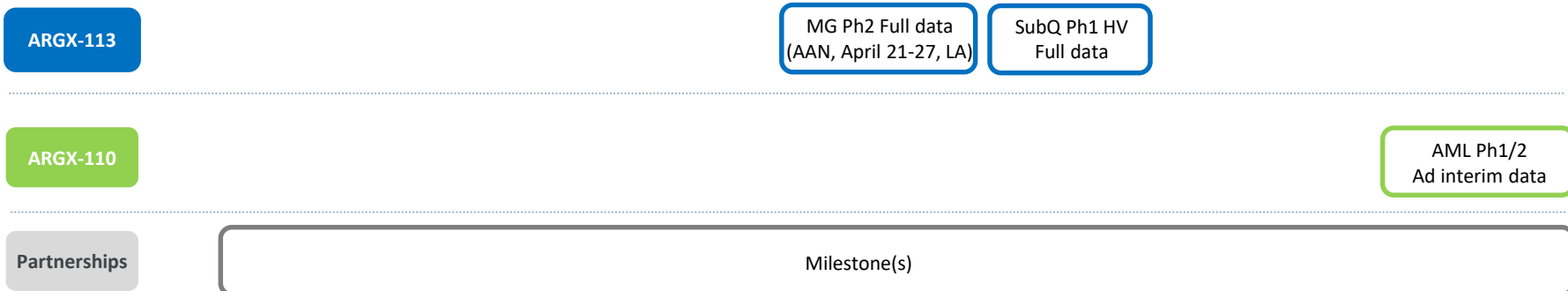
- **\$40mm upfront payment**
- **Received** first of two **\$10mm** preclinical milestones
- **\$625mm in potential** development, regulatory and commercial milestones
- **Tiered royalties** on sales at percentages ranging from **mid-single digits to low teens**
- **Co-promotional** rights for ARGX-115-based products in the **European Economic Area and Switzerland**



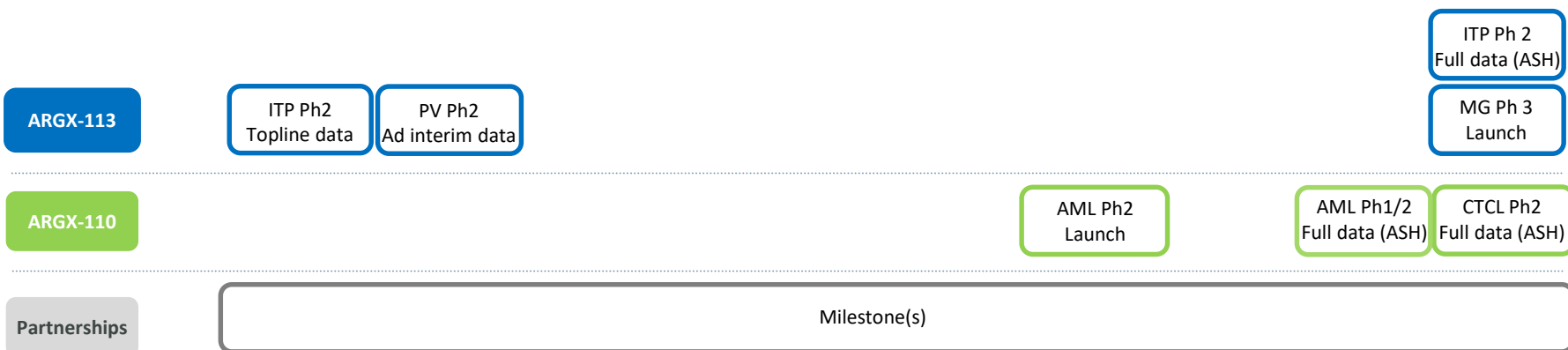
Partner	Asset	Key commentary
	<b>ARGX-109</b> (Gerilimzumab)	<ul style="list-style-type: none"> <li>Focused on developing an anti-IL-6 antibody for <b>Rheumatoid Arthritis</b></li> <li>Bird Rock responsible for all costs incurred in R&amp;D and commercialization</li> </ul>
	<b>ARGX-112</b>	<ul style="list-style-type: none"> <li>Focused on <b>inflammation-based dermatological indications</b></li> <li>LEO Pharma funds &gt;50% of all development costs up to CTA approval and all development post-approval of first Phase 1 trial in Europe</li> <li>argenx is eligible for ~€100mm in aggregate milestone payments + tiered royalties</li> </ul>
	<b>ARGX-116</b>	<ul style="list-style-type: none"> <li>Focused on developing an anti-ApoC3 antibody for <b>dyslipidemia</b></li> <li>Jointly responsible for conducting dyslipidemia research — Staten responsible for additional clinical development</li> <li>argenx eligible for royalties in the low twenties</li> </ul>
<b>Broteio Pharma</b>	<b>Undisclosed</b>	<ul style="list-style-type: none"> <li>Focused on developing a differentiated antibody against a novel complement target</li> <li>Potential to act synergistically with ARGX-113</li> <li>Jointly responsible for development expenses until preclinical POC — argenx granted exclusive option to license program after achieving preclinical POC</li> </ul>
	<b>Discovery Programs</b>	<ul style="list-style-type: none"> <li>Focused on <b>novel rare disease targets</b></li> <li>Provides Shire access to SIMPLE Antibody™ platform + Fc engineering technologies</li> <li>argenx has received \$12mm in aggregate upfront and milestone payments and R&amp;D fees over the course of the collaboration</li> <li>Shire purchased €12mm of argenx ordinary shares through participation in July 2014 IPO</li> </ul>

# Key Upcoming Milestones & Communications

## 2018 Q1 Q2



## 2018 Q3 Q4

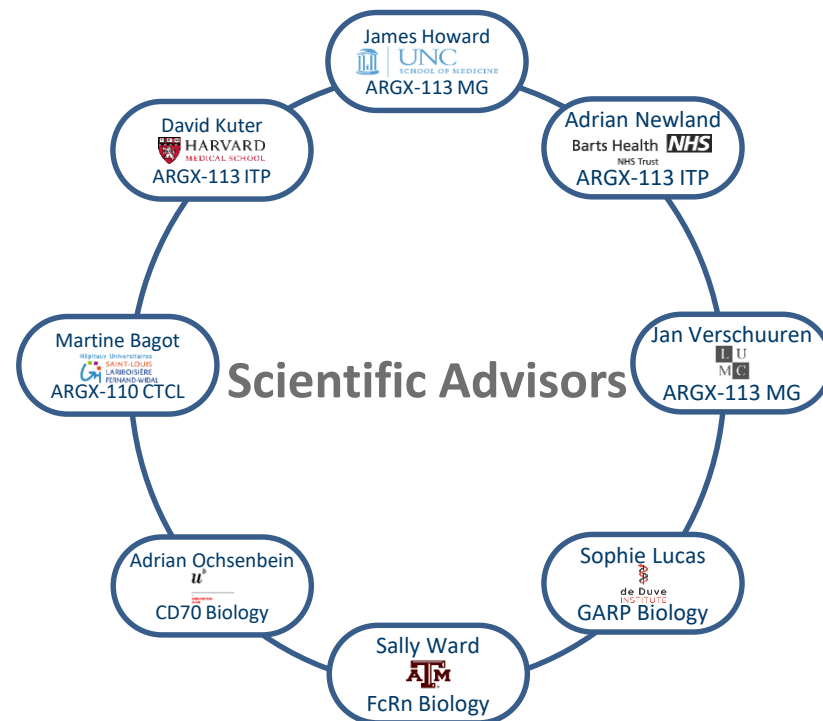
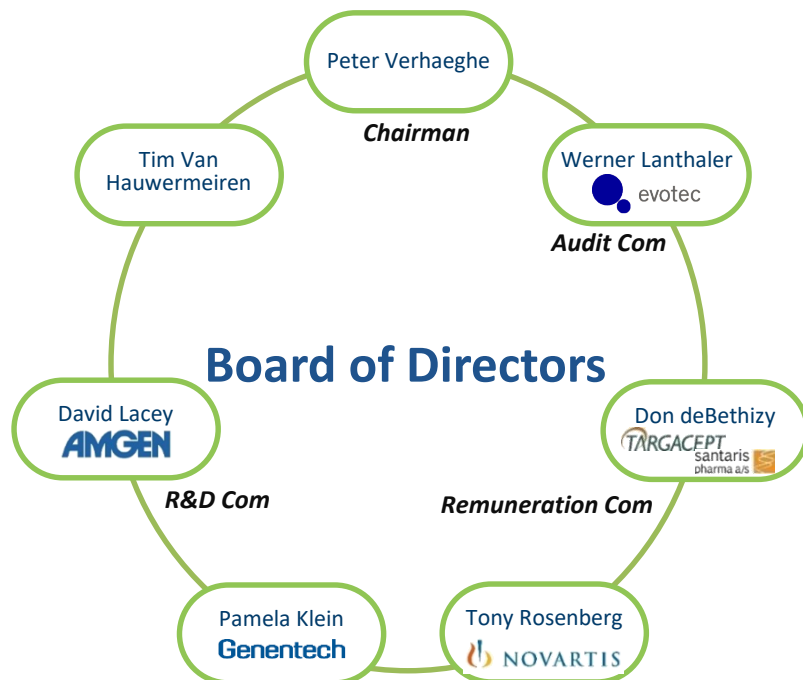
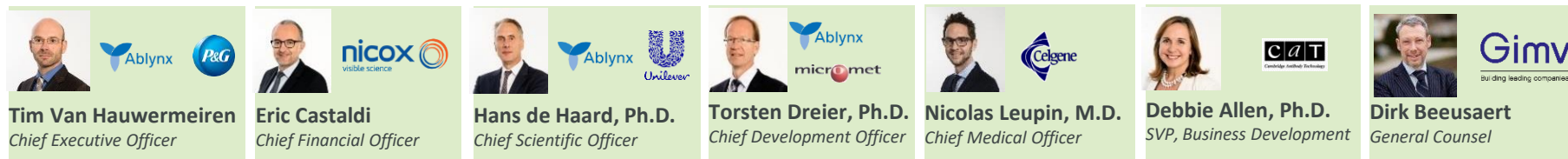


# Appendix

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## Management





Thank you!

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