



# Creating superior, differentiated antibodies

BIOTECH SHOWCASE
January 12-14, 2015

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## Creating superior, differentiated antibodies



### Focus on cancer & severe autoimmune diseases

- Highly differentiated products
- Orphan and large indications

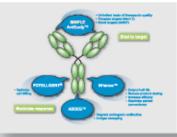
### Rich pipeline approaching major value inflection points

- ARGX-110 in Ph1/2 (oncology): first-in-class; clinical activity demonstrated
- ARGX-111 in Ph1 (oncology): best-in-class; clinical activity demonstrated
- ARGX-113 in preclinical (autoimmune): breakthrough concept for crisis management



### Strategic alliances with premier partners

- Strategic partnerships fuelled by consistent success
- Cash funding, milestone & royalty payments and product rights
- Strong cash position (~€60m Sept 2014)



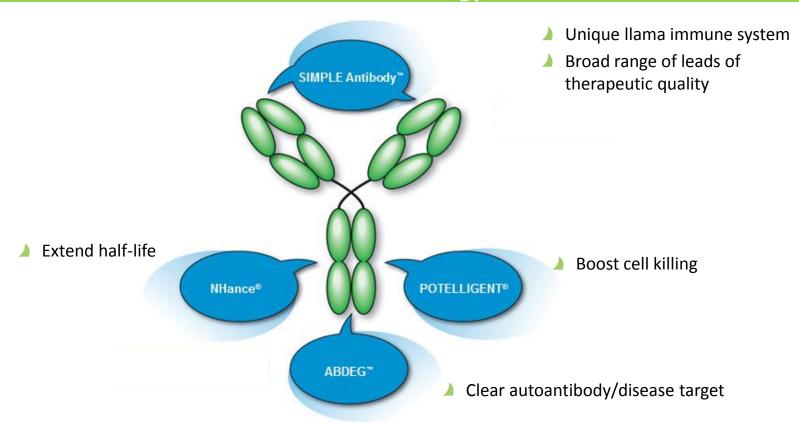
### Powerful technology suite

- Highly productive platform generates multiple leads
- SIMPLE Antibody™: Ilama immune systems cracks complex/novel targets
- NHance®, ABDEG™, POTELLIGENT® Fc engineering enables multiple MoA's
- IP protection until 2028-2033

## Suite of complementary antibody technology platforms

Therapeutic antibodies with multiple modes of action against complex targets

### **Powerful Technology Suite**



- Highly productive, generating multiple leads
- SIMPLE Antibody™: Unlock novel and complex targets
- NHance®, ABDEG™, POTELLIGENT®: Enhance SIMPLE Antibody™ leads
- Multiple layers of IP protection in place until 2028-2033 (excluding any PTE)

## Recognized promise of arGEN-X technology

"One cannot

The strength of arGEN-X' technology suite is recognized by its partners...



"Our collaboration has exceeded our expectations in delivering highly differentiated antibody programs within our therapeutic focus. The time is right to commit more significantly to the company through a longer term investment in its unique, world class technologies".

Dr. Philip J. Vickers, Global Head of Research and Development

# Rich pipeline approaching major value inflection points

Drug Candidate	Indication	Pre- clinical	Phase 1	Phase 1/2	Ownership	Proposition
ARGX-110	Heme malignancies TCL; Waldenström's					LEUKEMIA & LYMPHOMA SOCIETY*
ARGX-110	Solid tumors					Immune checkpoint inhibition (CD70) Enhanced cell kill
ARGX-110	Autoimmunity				√holl	
ARGX-111	Solid tumors Heme malignancies				Wholly owned	Complete c-Met blocking Enhanced cell kill
ARGX-113	Autoimmunity Myasthenia gravis				ned	Potent FcRn blocking Clears auto-antibodies
ARGX-112	Atopic dermatitis					Potent IL22R blocking
Discovery	Autoimmunity Cancer	multiple				Novel, complex targets e.g. GARP
ARGX-109	Autoimmunity Cancer					Potent IL-6 blocking Partnered with RuiYi
<b>Shire</b>	Undisclosed				Partnered	Novel, complex targets
PAYER BAYER	Undisclosed				ered	Novel, complex targets
Boehringer Ingelheim	Undisclosed					Novel, complex targets

# ARGX-110: pioneers intervention in CD70 biology



- Activity in 3/4 TCL patients in Ph 1
- PFS benefit in RCC, ovarian cancer, mesothelioma,...
- Outstanding safety profile

#### First-in-class human mAb

- Targets CD70 involved in broad range of blood & solid tumors
- 3 modes of action using SIMPLE Antibody™ and POTELLIGENT®
- Optionality in niche and major indications
- 3 development programs:
   TCL; BCL (WM); CML (cf. ASH '14)
- Upside potential in other CD70+ tumors and autoimmunity

### Partnership with



- Funding: 50% of Ph 1/2 study in WM
- Clinical expertise: Dana Farber (Treon), Sloan Kettering (Palombo), Mayo Clinic (Ansell)
- Connection to IWMF

Clinical activity & safety demonstrated

TCL: T-cell lymphoma; BCL: B-cell lymphoma; WM: Waldenström's macroglobulinemia; CML: chronic myeloid leukemia

## ARGX-110: development plan

Following biology & signs of clinical activity

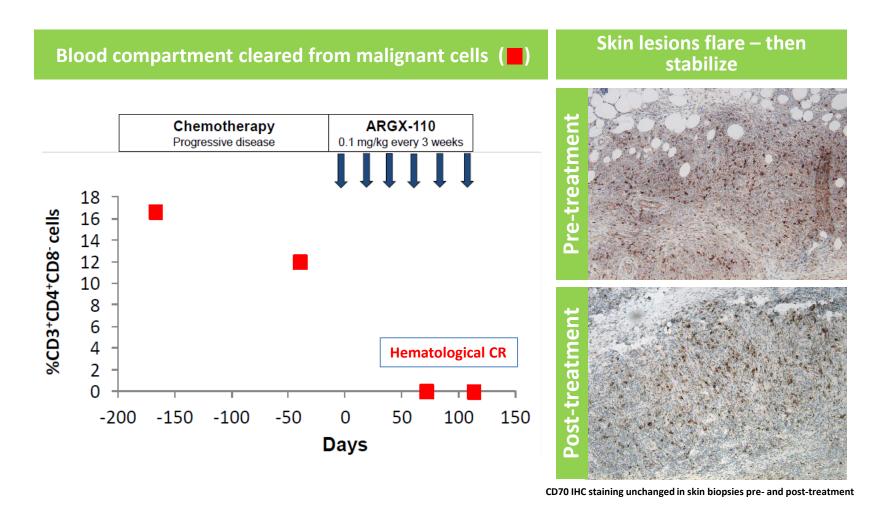
Indication	Disease Stage	Therapy	Preclinical	Phase 1	Phase 1/2
B-cell Lymphoma Waldenström's macroglobulinemia	Relapsed, Refractory	Mono			LEUKEMIA & LYMPHOMA SOCIETY"
T-cell Lymphoma CTCL; PTCL	Relapsed, Refractory	Mono			<b>&gt;</b>
CD70+ Blood Cancers	Relapsed, Refractory	Mono			
CD70+ Solid Tumors	Relapsed, Refractory	Mono			
CML	Various	Combo with TKIs			

### **Key Findings To Date**

- ~ 50% of all comers are CD70+
- No dose-limiting toxicity or autoimmune related AEs: supports combination therapy
- Biological activity observed in TCL; PFS benefit in RCC, ovarian cancer, mesothelioma
- Strong preclinical rationale for WM, CML

## ARGX-110: proof of biological activity

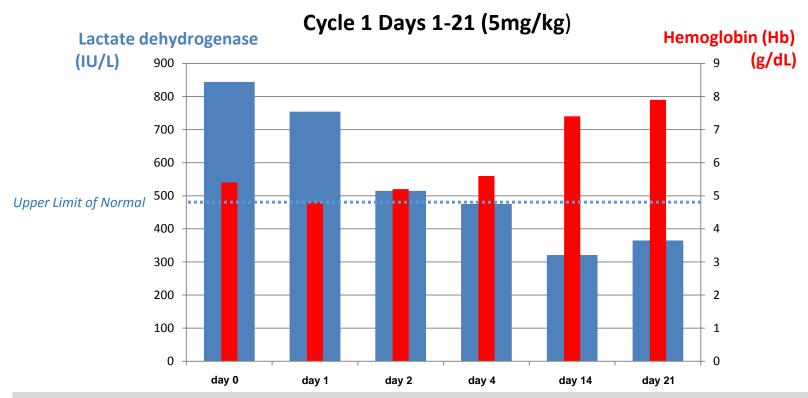
Complete hematological response; stable skin & nodal lesions in patient with Sézary –Syndrome (SS)



- 77 year old woman with CTCL-SS; refractory to multiple lines of chemotherapy
- Elimination of CD70 positive Sezary cells in 2nd CTCL-SS patient

# ARGX-110: Proof of biological activity

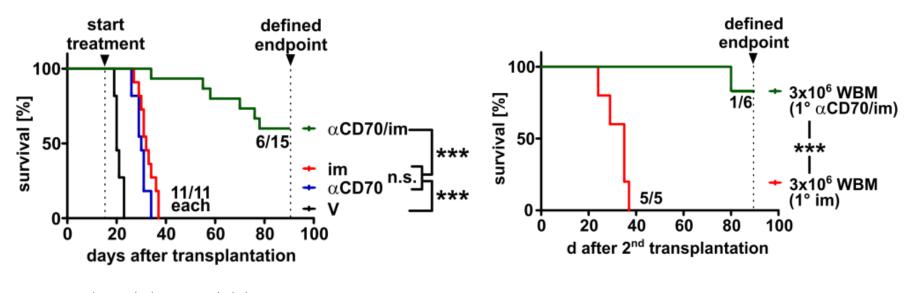
Angioimmunoblastic T-Cell lymphoma (AITL) with autoimmune hemolytic anemia



- 61 year-old male AITL patient showing elevated LDH and reduced Hb levels
- Refractory to chemotherapy (CHOP + Etoposide /Cyclosporine /Bendamustine Transplant )
- After 2 doses of ARGX-110
  - ➢ Hb increase to 7.9 without transfusion support
  - LDH normalized to 365
  - > 10% reduction in tumor size by CT scan

# ARGX-110/BCR-ABL1 inhibitor synergistic in CML model

Curative potential by potent elimination of leukemic stem cells (LSCs)



Im: imatinib; V: vehicle; WBM: whole bone marrow



Whole Bone Marrow cells from treated mice grafted into new animals (10d after start of treatment)

- LSCs become resistant to BCR-ABL1 inhibitors via CD70 overexpression
- Combo treatment with CD70 blocking mAb eliminates LSCs by synergistic blockade of Wnt signalling pathway

## ARGX-111: superior intervention in c-Met biology

Best-in-class antibody targeting c-Met positive tumors and circulating tumor cells



 Biological activity on bone metastasis and CTCs correlates with preclinical data



### Best-in-class therapeutic antibody

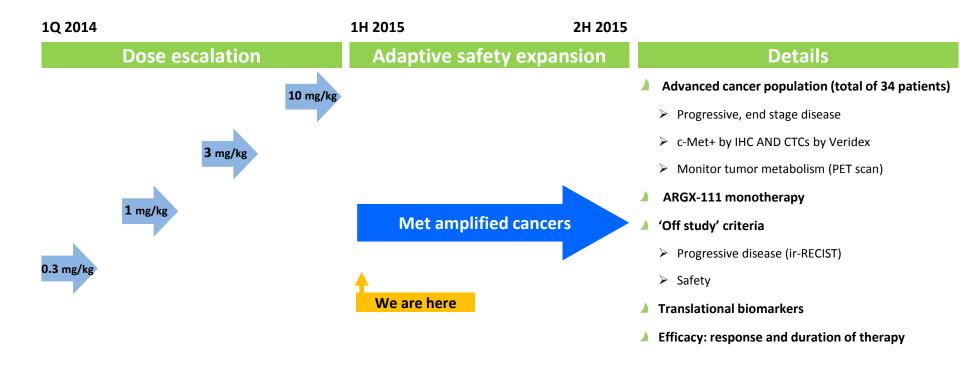
- Targets c-Met driven metastatis using SIMPLE Antibody™;POTELLIGENT®, NHance®
- 3 modes of action
- Potential in major c-Met+ cancer indications
- Superior performance to MetMab in preclinical models
- Highly effective in eliminating circulating tumor cells and blocking metastatic spread in preclinical models
- Targeting specifically Met amplified patients

### **Unmet medical need**

- Metastatic spread represents major unmet medical need
- Metastatic gastric cancer enables focused clinical development plan

Proof of biological activity

## ARGX-111: phase 1 trial overview



- ~50% of patients screened have CTCs
- Safety observations: Infusion related reactions (class effect)
- Biological activity observed in individual patient with gastric cancer with bone metastases

## ARGX-111: highly effective in preclinical models

Blocks tumor spread and eliminates CTCs in metastatic breast cancer model

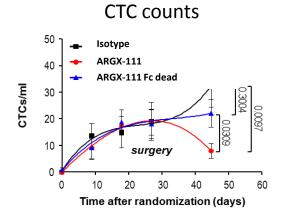
### neoadjuvant animal model

#### **Treatment**

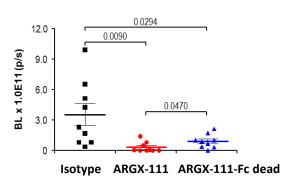
(4 weeks, twice weekly, 5mg/kg)

Surgery

**Autopsy** 



### Lung metastases



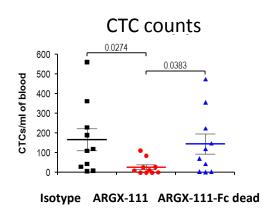
### adjuvant animal model

#### **Surgery**

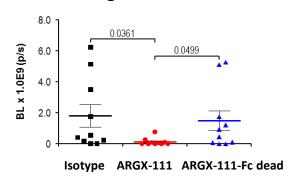
#### **Treatment**

(4 weeks, twice weekly, 5mg/kg)

**Autopsy** 



#### Lung metastases



## ARGX-111: proof of biological activity

### **Background**

- 50 year old gastric cancer patient with bone metastases; Met amplified
- Multiple lines of previous treatment; including surgery and 2 lines of triplet chemotherapy
- FDG-PET scan observation of biological activity (see right) confirmed on repeat imaging; CTCs reduced by 75%
- Good performance (clinical) status maintained throughout treatment period

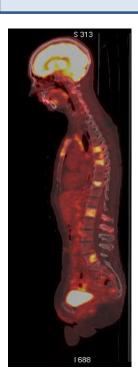
### **Biological activity**

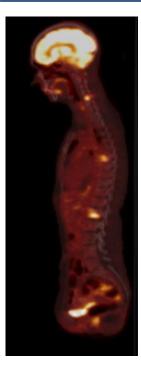
Baseline PET scan

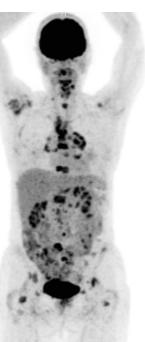
Improvement after 4 doses

Baseline PET scan

Improvement after 4 doses









Mixed response for patient for bone metastasis on PET scan

# ARGX-111: development plan

### **Deliverables and next steps Phase 1**

- Expanded safety data expected 2H 2015
- Preliminary efficacy data expected 2H 2015

### Clinical development plan

- 2<sup>nd</sup> line therapy gastric cancer
- Targeting specifically Met amplified patients (FISH method)
- Available for partnering

## ARGX-113 management of autoimmune crisis

First-in-class antibody fragment targeting FcRn

### First-in-class therapeutic antibody fragment

ARGX-113 P3065749-D

- Highly effective in preclinical models of RA, MS, MG,...
- Safe profile expected (individuals with loss-offunction mutations in FcRn)
- Phamacology study shows IgM and IgA levels unaffected

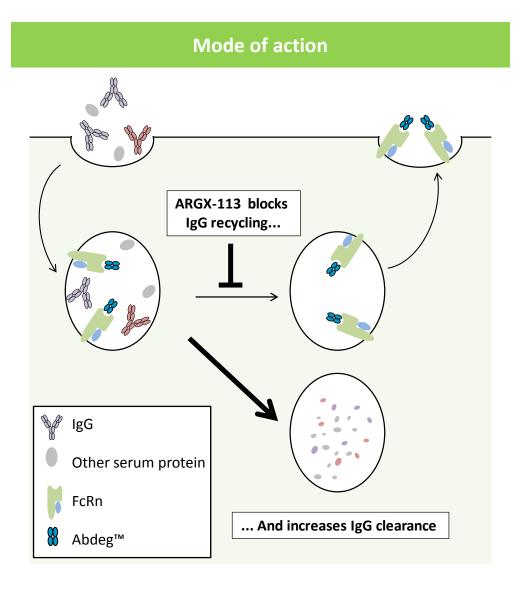
- Breakthrough management of autoantibodyinduced flares
- Targets FcRn involved in IgG recycling
- Uses ABDEG™ technology to rapidly clear pathogenic autoantibodies
- Applicable to niche and major indications

### **Unmet medical need**

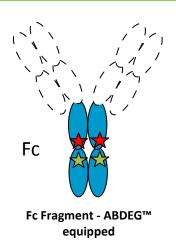
- Several autoimmune drugs address cell compartment but not autoantibody compartment
- Pathogenic autoantibodies play dominant role in many autoimmune diseases

**Pre-clinical Proof of Concept & Safety** 

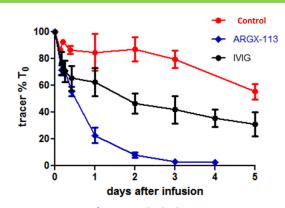
# ARGX-113 manages autoantibody induced flares



### Design



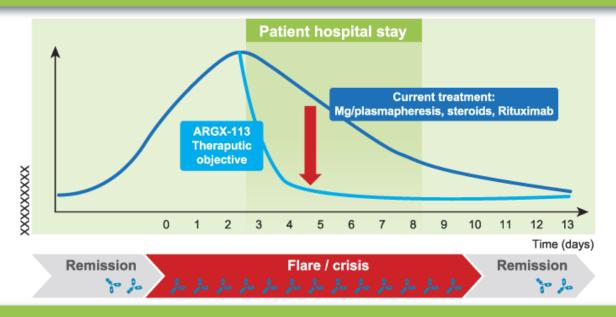
### **Therapeutic effect**



Comparison of tracer antibody clearance capacity of ARGX-113 vs IVIG (cynomolgus monkey model)

# ARGX-113 optionality in niche and major indications

ARGX-113 can address acute autoimmune flares more effectively than IVIG or Plasmapheresis



### **ARGX-113: indications and market potential**

Orphan indications	Prevalence per 100,000 (US)
Myasthenia gravis	20 - 50
Skin blistering diseases	18 (Pemphigus)

Major indications	Prevalence per 100,000 (US)
Systemic lupus erythematosus	80-100
Multiple sclerosis	~90

Benlysta® sells for 35,000 US\$/y, IVIg and plasmapheresis are US\$ 79,000 and US\$ 101,000 per cycle

Global IVIg market is >US\$4B (autoimmune diseases approximately 50%)

## Products protected by multiple layers of IP

- → Technology Platforms: SIMPLE Antibody™ platform + one or more Fc engineering platform
  - Broad composition of matter and process claims
  - Granted claims in US, UK and Israel
  - Pending claims in US, EU, other major territories
- Product and methods of use patents: ARGX-110, ARGX-111, ARGX-113, ARGX-109 specific
  - Both specific and broad composition of matter claims and method of use claims
  - Granted US claims for ARGX-110, ARGX-111, ARGX-113
  - Pending claims in EU, other major territories
- Patents currently expected to expire in 2028-2033 window
  - ARGX-110 and ARGX-111 core patents eligible for up to five years of Patent Term Extension
- Under our industrial partnerships, only non-exclusive licenses have been granted to our technology platforms

## Building partnerships for the long term

## Strategic Alliances

- Non-exclusive product discovery and development, leveraging entire technology suite
- Upfront funding, R&D support, development milestones, royalties, product reversion rights

### Collaboration Agreements







- Non-exclusive discovery collaborations, applying SIMPLE Antibody™ to complex targets
- Technology access fees, R&D support, milestones, royalties

### Innovative Access Program



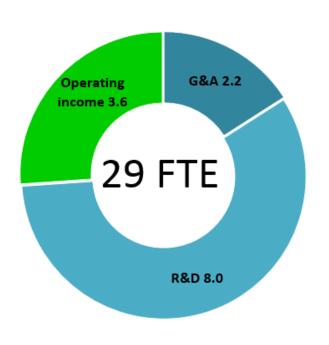
#### **Unnamed Biotech**

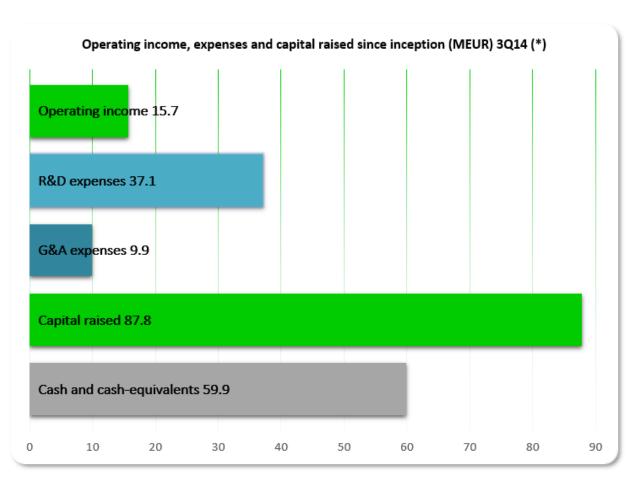
- Non-exclusive access to antibody technologies for academic and biotech centers of excellence
- Creative deal structures including option to acquire asset, golden share,...

- €19.1 million in cumulative revenue to date
- >€1.3B\* potential cumulative revenues from existing partnerships

## Well capitalized to execute strategic plan







(\*) not including deferred revenue and accruals

# 2015 strategic goals

Priority	Status	Milestones
ARGX-110 Safety & Efficacy data in B/T- cell NHL	2H15  ☑ 2H15 2H15	<ul> <li>Report Ph1 data (n=56)</li> <li>Report Ph1/2 T-cell lymphoma initial data (n=15)</li> <li>Obtain IND approval</li> <li>Report Ph1/2 WM initial data (n=15)</li> <li>Initiate 3rd indication specific study</li> </ul>
ARGX-111 Safety & Efficacy data in Met amplified solid tumors	☑ 	<ul><li>Determine dose</li><li>Report Ph1 interim data</li></ul>
ARGX-113 Enter clinic	1H15 2H15	<ul><li>GLP Tox data</li><li>Start first HV study</li></ul>
Preclinical pipeline Nominate candidate		Report progress GARP
Partnerships	☑  	<ul> <li>Report progress existing partnerships</li> <li>Enter 1st new partnership</li> <li>Enter 2nd new partnership</li> </ul>
US presence	 	<ul> <li>First US investors post-IPO</li> <li>Regular presence US investor conferences</li> <li>Non-deal roadshows</li> </ul>





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