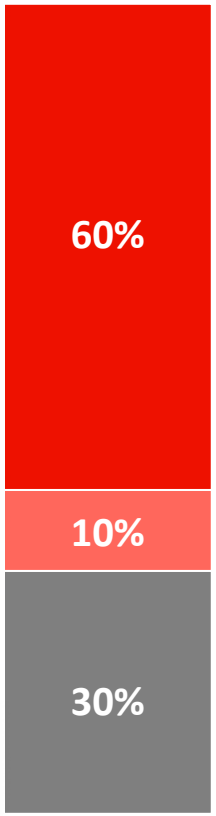
Our goal is to realize the full potential of in-line first and last liter products

Estimated % of PDT R&D spend for FY2023



- Expanded indications and benefit-risk datasets
- Device-driven solutions for diagnosis, management, and long-term follow-up
- Global expansion
- New formulations

- Optimizing value of in-line products
- Plasma production efficiencies
- New plasma-derived therapies

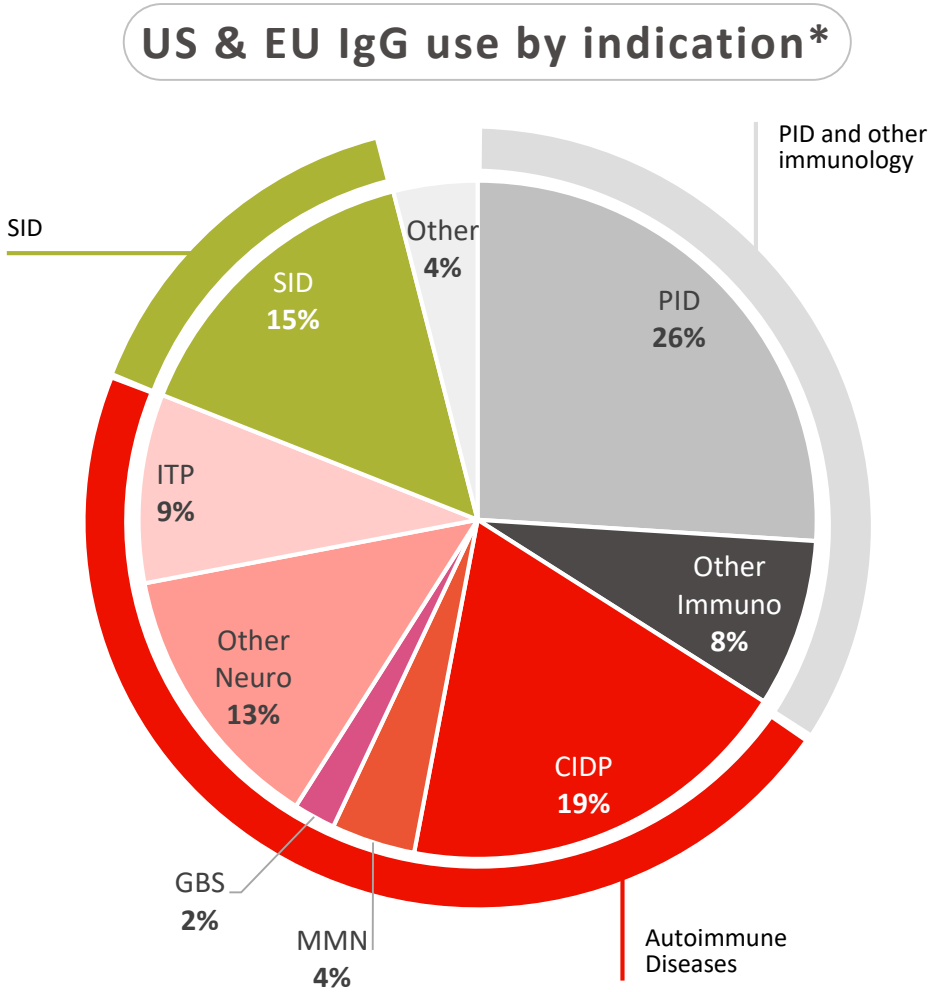
Immunoglobulins provide the scaffold for PDT innovation

Current State

- Exploring efficacy and safety of HYQVIA in patients with neuro-immune diseases (e.g. CIDP)
- Ongoing delivery device development

Opportunities

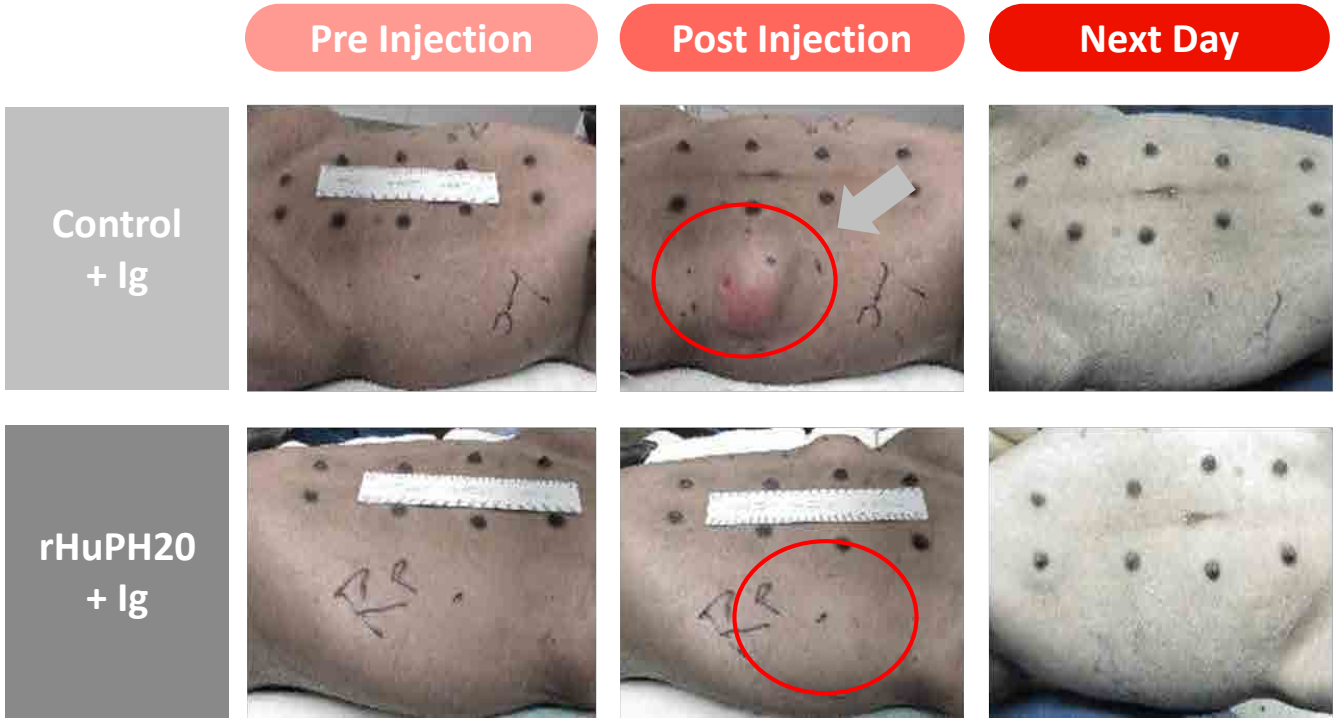
- Indications: New neuro-immunology and secondary immunodeficiencies (SID) programs**
- Geographic expansion: CUVITRU-Japan first patient to be enrolled in Q4 FY 2019
- Integrated care solutions:
  - Advance point of care diagnosis of primary immunodeficiency (PID)
  - New delivery and eHealth devices
- Develop f-20% SCIG

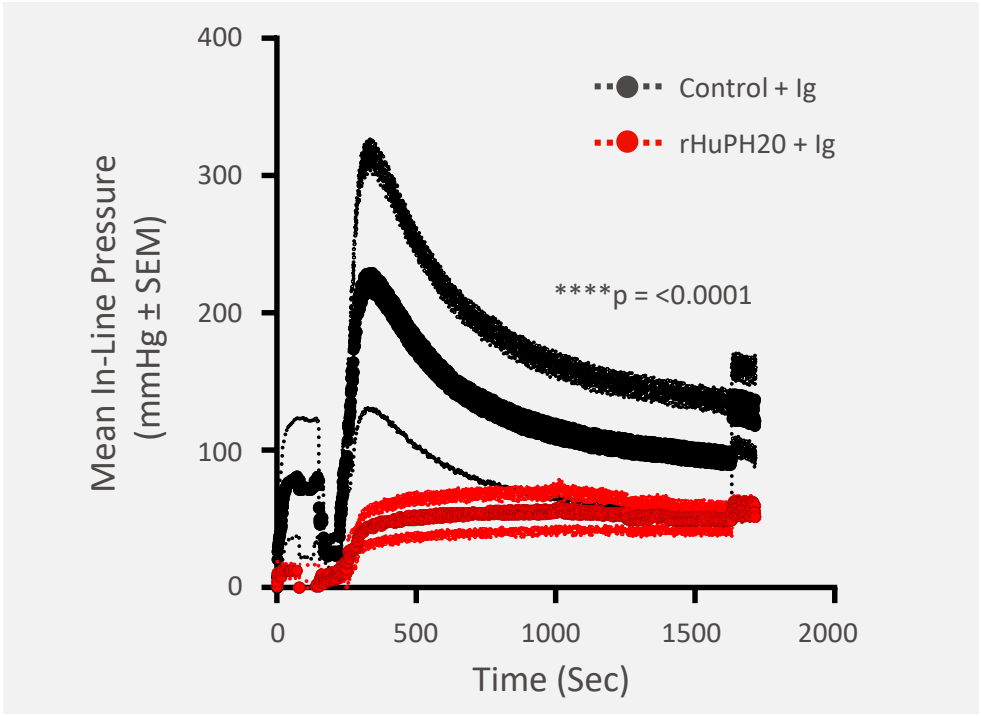


Source: Bain Study (US&EU), Volumes, Estimates based on internal calculations on EU Country Data
*Not all indications are approved for a Takeda product
**Subject to regulatory approval

Facilitated 20% SCIG has the potential to provide further value to patients who require higher volume administrations

Pig model, sequentially administered recombinant human hyaluronidase (rHuPH20) and 20% IgG (CUVITRU)*





Significantly decreased induration and infusion pressure and induration, and improved cutaneous blood flow

* In collaboration with Halozyme

Sequentially administered rHuPH20 and CUVITRU is for investigational use only

PROTHROMPLEX TOTAL can be developed to treat a variety of bleeding disorders

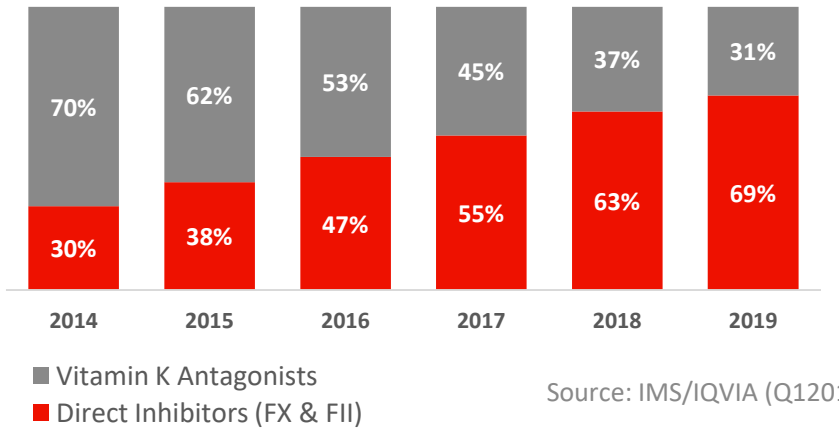
Current State

- Many different mechanisms used for prophylactic and surgical anti-coagulant therapy
- PROTHROMPLEX TOTAL use is limited to Vitamin K antagonists associated bleeding ex-US

Opportunities

- Geographic expansion into the US*
- Broaden indication to include treatment of multiple types of drug-induced bleeding
- Improved use via new formulations and device

Changing Treatment Paradigm
(EU Total Prescriptions)



Source: IMS/IQVIA (Q12019)

*Pending FDA Pre-IND consultation and future acceptance of an IND; Investigational use, subject to regulatory approval

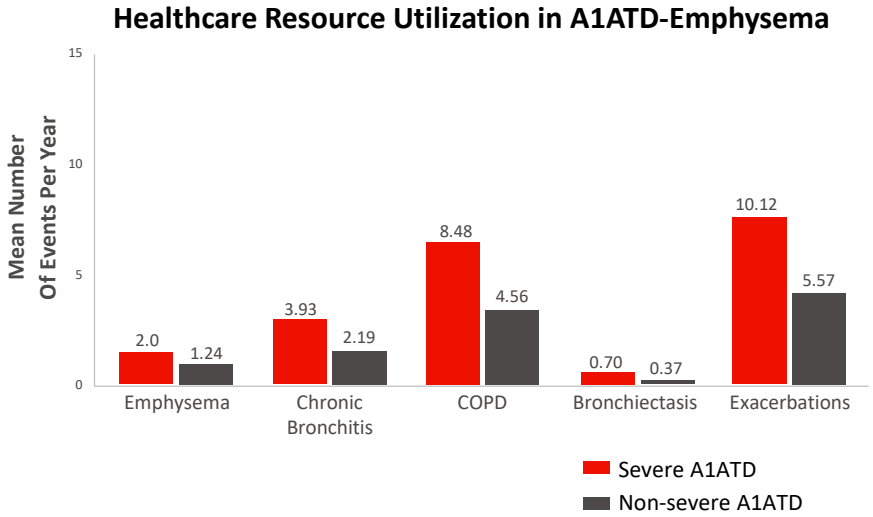
ARALAST & GLASSIA provide opportunities to improve outcomes in patients with alpha-1 antitrypsin deficiency (A1ATD)

Current State

- Current standard of care does not adequately treat A1ATD

Opportunities

- New clinical study to assess the efficacy of a higher dose of GLASSIA in patient with emphysema related to A1ATD
- Next generation A1AT*: formulation, delivery and management devices
- Explore A1AT as acute phase reactant



Source: Herrera et al (2019) Chest annual meeting

*Investigational use, subject to regulatory approval

Investigational A1AT-replacement formulations may offer additional value to patients*

Short term

Highly purified post-fractionations pdA1AT-precursor

↓

Concentration
of A1AT by ultra filtration potentially leading to an **extended $t_{1/2}$**

Mid term

Protein Modification
site-specific modification leading to an **extended $t_{1/2}$**

↓

Purification
by ion-exchange chromatography

Formulation Development
Evaluate SC administration

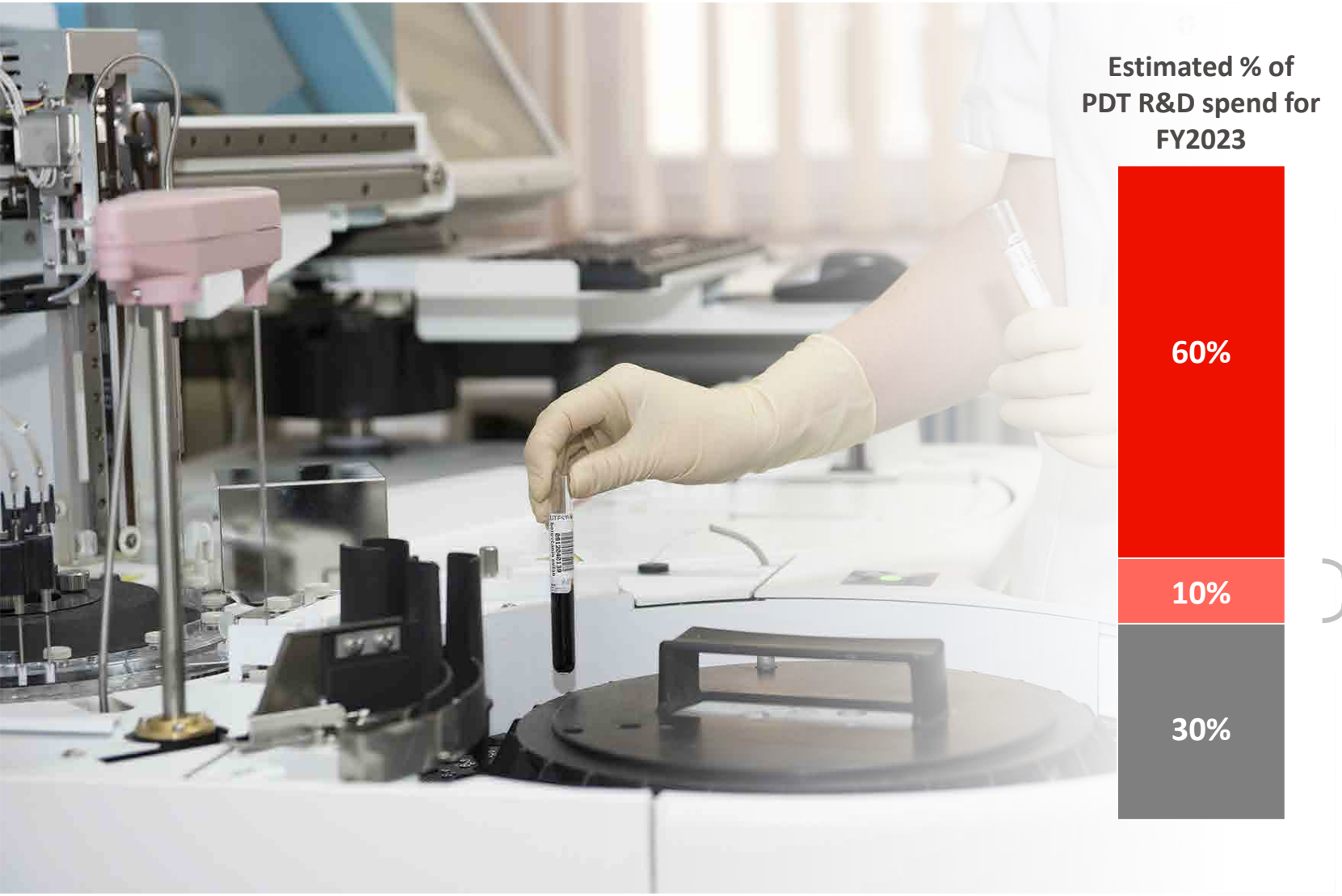
Device Development
Potential to add incremental value for patients

In Vivo Model

- PK parameters for a modified A1AT have been assessed in vivo
- Statistically significant improvement of PK parameters for modified A1AT compared to Aralast

*Subject to regulatory approval

We are optimizing efficiencies of plasma-derived therapy production



Estimated % of PDT R&D spend for FY2023

- Optimizing value of in-line products
- Plasma production efficiencies
- New plasma-derived therapies

→ Pharmaceutical science support for manufacturing

We are further improving manufacturing efficiencies to increase yield

High yield high throughput initiatives will improve delivery of last liter products to patients globally

A new high yield & high throughput process:

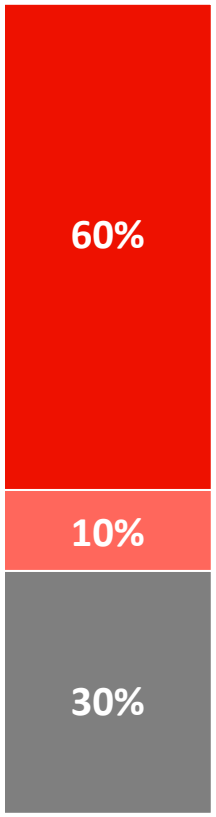
- Process development to shorten IgG upstream and total albumin cycle times
- Capture of purification waste to isolate proteins for possible new development

Potential benefit of higher yield and increased capacity

Significantly reduced COGS with positive ROI

We are identifying and developing new plasma-derived therapies

Estimated % of PDT R&D spend for FY2023



- Optimizing value of in-line products
- Plasma production efficiencies
- New plasma-derived therapies

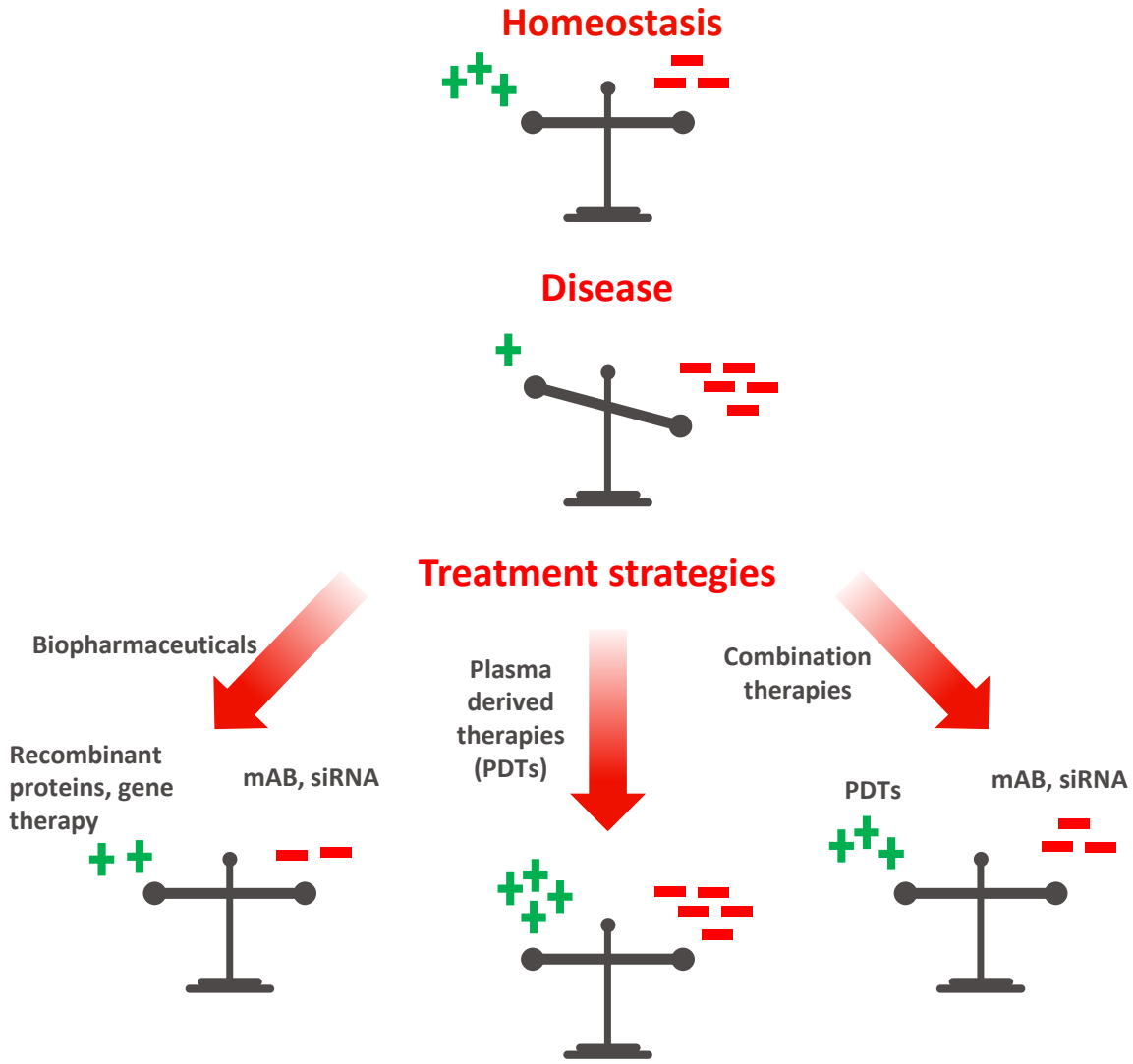
→ New targeted therapies for diverse therapeutic areas

We believe there is a tremendous amount of untapped potential in plasma proteins

>3000 plasma proteins control balance, some with health promoting + effects and other with disease associated − effects

Generally, PDTs have been developed to **replace functional deficiencies** in health promoting proteins

We believe PDTs, alone or in combination, **can be developed to address acute and chronic diseases**



We are well-positioned to create near-term and sustainable growth

	NEAR TERM CATALYSTS		SUSTAINED GROWTH	
TARGET APPROVAL FY →	FY19 – FY22	FY23 – FY24	FY25 AND BEYOND	
IMMUNOLOGY	**HYQVIA** ***Halozyme*** Chronic inflammatory demyelinating polyneuropahty (CIDP)	**CUVITRU** Japan PID (FPI Q4 2019)	**GLASSIA** ***Kamada*** A1ATD-emphysema*	HYPERIMMUNE IGx GENERATION
	GLASSIA ***Kamada*** Immunogenicity/bronchioalveolar lavage	**HYQVIA** ***Halozyme*** EU Pediatric PID	**CINRYZE** Ex-HAE indications TBD	ACUTE PHASE REACTANTS
	HYQVIA - HyHub ***Flextronics*** Delivery Device	**TAK 880** **Low IgA-IgG (IV)** Primary Immunodeficiency	**CINRYZE** Geographic expansion	NEUROIMMUNOLOGY/OTHER AUTOIMMUNE
	HYQVIA Geographic expansion	**HYQVIA** ***Halozyme*** US Pediatric PID	**Hyper-Immune IG** Infectious disease	PLASMA-DRUG COMBINATIONS
	CUVITRU Geographic expansion	**CUVITRU** Wearable Device	**Alpha-1 Antitrypsin (A1AT)** Next generation formulations	INTEGRATED CARE: DEVICES AND DIAGNOSTICS
		TAK 881 Facilitated 20% SC IgG ***Halozyme*** Primary Immunodeficiency (PID)		PLASMA PROTEOMICS for BIOMARKERS and NEW DRUG DISCOVERY
HEMATOLOGY	**CEPROTIN** Geographic expansion	**PROTHROMPLEX TOTAL** Device and formulation	**PROTHROMPLEX TOTAL** US - Drug-induced bleeding **	
	FEIBA Volume reduction	**Butyryl Cholinesterase** Organophosphate poisoning		

*Subject to regulatory approval
**Pending FDA Pre-IND consultation and future acceptance of an IND

Clinical-stage assets | Platforms

Treatment paradigms of rare and complex diseases are dynamic and we are innovating continuously

	Uncertainties	PDT Innovation
	→ Deepening understanding of underlying mechanisms of diseases and co-morbidities	→ Directed most appropriate uses of PDTs → With Takeda Global R&D, investigate plasma-drug combinations
	→ Evolution of Fc- and Fc-Receptor approaches (including anti-FcRn) → Gene therapies and RNAi for specific diseases	→ Focus on primary and secondary immunodeficiencies → Identify IG responders in specific auto-immune diseases → Develop PDTs in conjunction with gene therapies and RNAi (e.g. A1ATD-liver disease)
	→ Perception of lack of plasma product differentiation	→ Integrated care solutions will help to expand therapeutic values and differentiate Takeda products → New formulations may offer new approaches for patients

Key takeaways for Plasma-Derived Therapies R&D

1

Dedicated PDT R&D organization focused on – and investing in – reimagining plasma, while leveraging Takeda's broader R&D resources and capabilities

2

Poised to deliver near-term value by optimizing our in-line portfolio and improving efficiencies throughout the value chain

3

Committed to creating long-term value by unlocking the full potential of plasma to develop innovative, integrated solutions that meaningfully benefit patients globally