

Investors' & Analysts' Meeting Barcelona 2014

Investors' & Analysts' Meeting in Barcelona

Thursday 5th and Friday 6th
June 2014

Thursday, June 5th 2014 –Sant Cugat del Vallés

<u>Time</u>	<u>Topic</u>
9:30 - 10:00	Coffee + Welcome
10:00 - 10:45	On-going Industrial Investments and Expansion Strategies
10:45 - 11:30	Plasma Procurement. Quantity, Quality & Safety
11:30 - 12:00	Coffee break
12:00 - 12:45	Plasma economics and Case study
12:45 - 13:45	Lunch
13:45 - 14:30	Albumin, Haemopheresis and Other related topics
14:30 - 14:50	Sales & Marketing
14:50 - 15:10	Coffee break
15:10 - 15:40	Sales & Marketing (continued)
15:40 - 16:00	New Diagnostic activities
16:00 - 17:00	Q & A
17:00	Transfer to Barcelona
19:00	Pick-up from recommended hotels
19:15 – 22:00	New corporate movie – Dinner (<i>Fundació Sant Pau - C/Sant Antoni Maria Claret 167 (Barcelona)</i>)

Friday, June 6th 2014 – Parets del Vallés & Sant Cugat del Vallés – Group A

<u>Time</u>	<u>Topic</u>
8:30 - 9:00	Coffee + Welcome & Introduction to the tour
9:00 - 10:00	Visit to the new Bioscience “Frac 4” facility
10:00 - 10:30	Transfer to Diagnostic facility
10:30 - 11:00	Coffee + Welcome & Introduction to the tour
11:00 - 12:00	Visit to Diagnostic Grifols facility
12:00 - 12:30	Transfer to Sant Cugat
12:30 - 13:30	Lunch in Sant Cugat
13:30 - 14:30	Financials
14:30 - 15:15	Q & A and closing
15:15	Transfer to Barcelona / airport

Friday, June 6th 2014 – Parets del Vallés & Sant Cugat del Vallés – Group B

<u>Time</u>	<u>Topic</u>
8:30 - 9:00	Coffee + Welcome & Introduction to the tour
9:00 - 10:00	Visit to Diagnostic facility
10:00 - 10:30	Transfer to the new Bioscience “Frac 4” facility
10:30 - 11:00	Coffee + Welcome & Introduction to the tour
11:00 - 12:00	Visit to the new Bioscience “Frac 4” facility
12:00 - 12:30	Transfer to Sant Cugat
12:30 - 13:30	Lunch in Sant Cugat
13:30 - 14:30	Financials
14:30 - 15:15	Q & A and closing
15:15	Transfer to Barcelona / airport

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This document contains forward-looking information and statements about GRIFOLS based on current assumptions and forecast made by GRIFOLS management, including proforma figures, estimates and their underlying assumptions, statements regarding plans, objectives and expectations with respect to capital expenditures, synergies, products and services, and statements regarding future performance. Forward-looking statements are statements that are not historical facts and are generally identified by the words “expected”, “potential”, “estimates” and similar expressions.

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Analysts and Investors meeting. Barcelona, June 5–6, 2014

Investors' & Analysts' Meeting Barcelona 2014

On-going Industrial Investments and Expansion Strategies

- Victor Grifols -

Bioscience Division

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Name of the project	NFF – Fractionation facility	
Location	Clayton (USA)	
Project number	1	
Characteristics	6MM Lit/Year	
Investment	260MME	
Date start	Feb 2010	
Date finish	Sep 2013	
Actual status	Completed Validated Conf. Lots executed FDA Approval Expected Q2 2015	
Prod. Start	Jun 2015 approx	
New jobs	25 + redeployments	

Other comments:

- Originally designed by Talecris, this project started before the acquisition
- Because Albumin (Fraction V) was not strategic for Talecris, the NFF was designed to fractionate only to Fraction IV level
- Time from construction started to final approval will be 5.5 years

Name of the project	NFF – Fraction V Expansion	
Location	Clayton (USA)	
Project number	2	
Characteristics	6MM Lit/Year	
Investment	22MME	
Date start	Jan 2012	
Date finish	Sep 2013	
Actual status	Completed Validated Conf. Lots executed FDA Approval Expected Q2 2015	
Prod. Start	Jun 2015 approx	
New jobs	25 + redeployments	

Other comments:

- As Albumin is a key product for Grifols, after the acquisition it was decided to adequate NFF to continue the fractionation process until Fraction V

Name of the project	FRAC 4 – Fractionation facility	
Location	Barcelona (Spain)	
Project number	3	
Characteristics	2.1 MM Lit/Year	
Investment	23MME	
Date start	Jul 2011	
Date finish	Apr 2013	
Actual status	Completed & Validated EMA approval Feb 2014 FDA approval expected Sep 2014 still pending	
Prod. Start	Feb 2014	
New jobs	76	


Other comments:

- Fast-track project due to the FTC decision that obliged us to sell Melville fractionation plant to Kedrion
- Built in only 2 years, plus a seven month period for validations and EMA approval

Name of the project	STERILE FILLING BUILDING - Production	
Location	Clayton (USA)	
Project number	4	
Characteristics	Sterile Filling	
Investment	29.7MM€	
Date start	Q2 2013	
Date finish	Q4 2014	
Actual status	In Progress Conformance Lots Q2 2015 EMA & FDA approval expected Q2 2016	
Prod. Start	Q2 2016 approx	
New jobs	N/A	

Other comments:

- Existing building has been enlarged in 3,000m² to allocate 3 sterile filling lines for liquids & 1 freeze-dried line following the GSF® (Grifols Sterile Filling) method

Name of the project	GAMUNEX® - Fraction II + III purification		
Location	Los Angeles (USA)		
Project number	5		
Characteristics	Up to 17MM gr/Year		
Investment	53MM€		
Date start	Jan 2009		
Date finish	Sep 2013		
Actual status	Construction Complete Validation Complete Conf. Lots executed FDA Approval Expected Q4 2014		
Prod. Start	Nov 2014 approx		
New jobs	102		

Other comments:


- Originally built to manufacture Flebogamma® DIF. After Talecris' acquisition, the building was redesigned and renewed to manufacture Gamunex®
- Current capacity 8.4MM gr., designed to easily double the throughput whenever needed

Name of the project	PROLASTIN® C - Purification & Sterile Filling	
Location	Barcelona (Spain)	
Project number	6	
Characteristics	1.5MM gr./Year	
Investment	31MME	
Date start	Aug 2014	
Date finish	Mar 2016	
Actual status	City Permits requested Validations May 2016 Conf. Lots Q2 2017 FDA Approval Expected Q4 2017	
Prod. Start	Q4 2017 approx	
New jobs	50	

Other comments:

- Purification and filling plant for Alpha 1PI in both, liquid and freeze-dried final presentations
- Project schedule

Shell construction	Sep 2014 – Sep 2015
Interiors	May 2015 – Mar 2016
Validations & Conformance Lots	May 2016 – Jun 2017

Name of the project	ALBUMIN ENLARGEMENT - Purification & Sterile Filling	
Location	Los Angeles (USA)	
Project number	7	
Characteristics	92MM gr./Year	
Investment	21MM€	
Date start	Jan 2013	
Date finish	Jul 2014	
Actual status	In Progress Completion Jul 2014 FDA Submission Dec 2015	
Prod. Start	Q2 2016 approx(vials)	
New jobs	30	

Other comments:

- This new facility has been designed to purify and sterile fill Albumin, both in glass and plastic containers
- The new flexible container for biological products has been developed by Laboratorios Grifols and the sterile filling line equipment for those containers is being developed by Grifols Engineering

Name of the project	ALBUMIN PURIFICATION - Facility expansion	
Location	Clayton (USA)	
Project number	8	
Characteristics	130MM gr/Year	
Investment	10.2MM€	
Date start	Mar 2012	
Date finish	Dec 2013	
Actual status	Completion Dec 2013 Conf. Lots executed FDA Submission Mar 2014	
Prod. Start	Q1 2015 approx	
New jobs	N/A	


Other comments:

- Current capacity 65.5MM gr., possibility to increase to 130MM gr/year adding some equipment on the existing areas
- The purpose of this new purification area is to replace the acetone Albumin method by Grifols Albutein® with a higher yield

Name of the project	FIBRIN SEALANT – Manufacturing plant	
Location	Barcelona (Spain)	
Project number	9	
Characteristics	600M Eq.L Plasma	
Investment	16.3MM€	
Date start	Jun 2008	
Date finish	Dec 2013	
Actual status	Completed Validated EMA Facilities Approved Jul13 FDA pending clinical trials	
Prod. Start	Q1 2016 Europe approx	
New jobs	25	


Other comments:

- Planned for two different product presentations in syringes, this plant also includes clinical - manufacturing premises for R&D with segregated areas for different viral inactivation levels

Name of the project	PLASMA LOGISTIC CENTER (-30° Warehouse)		
Location	Clayton (USA)		
Project number	10		
Characteristics	2.5MM Liters		
Investment	25MM€		
Date start	Q2 2013		
Date finish	Q3 2014		
Actual status	Expected certificate occupancy Oct 2014 EMA & FDA expected approval Q2 2015		
Prod. Start	Q2 2015 approx		
New jobs	Reduction due to automation		


Other comments:

- It replaces Benson`s current warehouse
- 100 % automated (no personnel), at -30°c with capacity for up to 2.5MM liters
- In addition, it will be equipped for automatic reading of new RFID bottles

Name of the project	BELLFLOWER - Plasma Center	
Location	Los Angeles (USA)	
Project number	11	
Characteristics	Donor Center	
Investment	4MM€	
Date start	Dec 2011	
Date finish	Oct 2013	
Actual status	Completed Validated EMA Approval FDA Approval	
Prod. Start	Feb 2014	
New jobs	60	

Other comments:

- Bellflower will be the center where Grifols will test all new technologies that the group is developing in the plasma industry activity
- Right now we have 150 donor centers; new centers are being built

Name of the project	ARACLON - New Alzheimer R&D Lab (Vaccine)	
Location	Zaragoza (Spain)	
Project number	12	
Characteristics	R&D Labs	
Investment	1.5MM€	
Date start	Jan 2013	
Date finish	Dec 2013	
Actual status	Finished	
Prod. Start	Mar 2014	
New jobs	N/A	

Other comments:

- Design and remodel of a 2,933m² surface for Araclon, an R&D company focused in the research and development for Alzheimer's disease working in a detection kit and vaccine
- In March 2013 Grifols acquired 51% of the equity of Zaragoza-based company Araclon Biotech
- Current holding 61%

Name of the project	Barcelona Alzheimer Treatment & Research Center	
Location	Barcelona (Spain)	
Project number	13	
Characteristics	Alzheimer's Disease	
Investment	1.3MM€	
Date start	Jun 2013	
Date finish	Dec 2013	
Actual status	Finished	
Prod. Start	Mar 2014	
New jobs	N/A	



Other comments:


- Fundación ACE is an international reference Center for the diagnostic and treatment of Alzheimer's disease : it is one of the biggest centers in Europe
- Has participated in 76 International Clinical Trials in phase II and III and is currently running 11 trials
- A Grifols donation has permitted to build and equip this Alzheimer treatment and research center

On-going industrial investments summary: Bioscience division

Project ID	Location	Name of the project	Total in MM€
1	Clayton (USA)	NFF - Fractionation	260.0
2	Clayton (USA)	NFF – Fraction V Expansion - Fraction V Obtainment	22.0
3	Barcelona (Spain)	FRAC IV - Fractionation	23.0
4	Clayton (USA)	Sterile Filling Building - Production	29.7
5	Los Angeles (USA)	Gamunex® - Purification	53.0
6	Barcelona (Spain)	Prolastin® C - Purification & Sterile Filling	31.0
7	Los Angeles (USA)	Albumin Enlargement - Purification & Sterile Filling	21.0
8	Clayton (USA)	Albumin Enlargement - Purification	10.2
9	Barcelona (Spain)	Fibrin Sealant Manufacturing Plant	16.3
10	Clayton (USA)	Plasma Logistic Center (-30° Warehouse)	25.0
11	Los Angeles (USA)	Bellflower - Plasma Center	4.0
12	Zaragoza (Spain)	Araclon - New Alzheimer R&D Lab (Vaccine)	1.5
13	Barcelona (Spain)	Barcelona Alzheimer Treatment & Research Center	1.3


Diagnostic & Hospital Division

GRIFOLS pioneering spirit

Name of the project	IMMUNOHEMATOLOGY - Reference Labs	
Location	San Marcos (USA)	
Project number	14	
Characteristics	Reference Lab	
Investment	1.8MM€	
Date start	Mar 2013	
Date finish	Dec 2014	
Actual status	On-going Validation expected end 2014	
Prod. Start	Q1 2015 approx	
New jobs	8	

Other comments:

- A state-of-the-art Immunohematology reference lab for Diagnostic division is being built in San Marcos site
- The new areas will also allocate a reference training area in blood genotyping (Progenika) for customers

Name of the project	MURCIA FACILITY FASE IV – Blood Bags	
Location	Murcia (Spain)	
Project number	15	
Characteristics	4MM Blood Bag kits	
Investment	6.3MM€	
Date start	Apr 2013	
Date finish	Dec 2014	
Actual status	In progress EMA approval expected Dec 2014	
Prod. Start	Feb 2015 approx	
New jobs	Downside for automation	

Other comments:

- Project to relocate and automate the production from former plant to this new site
- The new line is intensively automated with robots for kits assembly and palletization
- Consolidation of production in one site

Name of the project	GRI-CEI - Blood Bags Facility	
Location	Curitiba (Brazil)	
Project number	16	
Characteristics	2MM Blood Bag kits/Year	
Investment	9.5MM€	
Date start	Q4 2013	
Date finish	Apr 2015	
Actual status	On-going Validation Q4 2015	
Prod. Start	Q1 2016 approx	
New jobs	80	

Other comments:

- Gri-Cei is a joint venture with the Brazilian company CEI, Ltda. (Comércio Exportação e Importação de Materiais Médicos, Ltda.). Grifols holds 60% of the shares
- The project includes the acquisition of a 43,362m² plot , the construction of a 5,427 m² manufacturing facility, a 1,252 pallets capacity warehouse, commercial offices and quality control labs

Name of the project	FILLING LINE FOR DILUENTS	
Location	Parets (Spain)	
Project number	17	
Characteristics	5MM Units/Year	
Investment	2.5MM€	
Date start	Jul 2013	
Date finish	May 2014	
Actual status	On going Validations Q3 2014 EMA & FDA expected approval Jun 2015	
Prod. Start	Jul 2015 approx	
New jobs	6	

Other comments:

- Due to the high volume of water for injection needed as a diluent for the freeze-dried Bioscience products and the extreme difficulties to find internationally approved diluents, the company decided to in-house manufacture and obtain the corresponding regulatory bodies licenses

Name of the project	HORIZON - New Diagnostic Production Facility	
Location	Emeryville (USA)	
Project number	18	
Characteristics	Antigen production	
Investment	96MME	
Date start	Nov 2013	
Date finish	Feb 2017	
Actual status	On-going	
Prod. Start	Q4 2017	
New jobs	40 + redeployments	

Other comments:

- Horizon project is meant to concentrate the antigen production in one single and new building
- The operations of MS&T will also be consolidated in the new building
- Freezer farm for Biological products will be constructed
- 3 Stories with a total of 9,100m²

On-going industrial investments summary: Diagnostic & Hospital division

Project ID	Location	Name of the project	Total in MM€
14	San Marcos (USA)	Immunoematology - Reference Labs	1.8
15	Murcia (Spain)	Murcia Facility Phase IV – Blood Bags	6.3
16	Curitiba (Brazil)	GRI-CEI - Blood Bags Facility	9.5
17	Parets (Spain)	Solvents vials filling line	2.5
18	Emeryville (USA)	Horizon - New Diagnostic Production Facility	96.0

Commercial & Corporate Division

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Name of the project	Grifols Worldwide Operations	
Location	Dublin (Ireland)	
Project number	19	
Characteristics	Logistic Center	
Investment	45MME	
Date start	Jan 2014	
Date finish	Feb 2015	
Actual status	On-going construction Key Milestone: Validation May 2015	
Prod. Start	Oct 2015 approx	
New jobs	120	

Other comments:

- Warehouse and Logistics area for worldwide distribution, plasma clearing, final quality control lab and offices with a total of 22,000 m² on 11Ha land plot
- Warehousing capacity of 1,150 pallets of plasma at -30°C and 2,950 pallets of intermediate and finish products at +5°C
- 5 packaging lines

Name of the project	Grifols Worldwide Operations – Work Status		
Location	Dublin (Ireland)	Project number	19

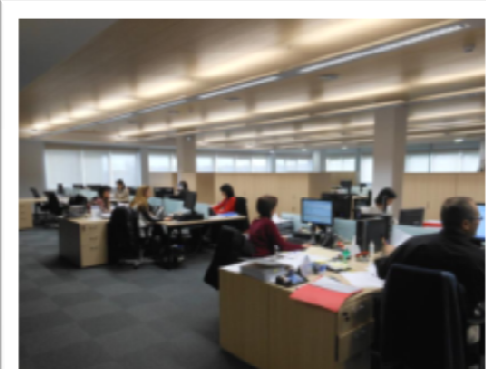


Name of the project	H.Q. Grifols Therapeutics Inc.	
Location	Raleigh (USA)	
Project number	20	
Characteristics	Offices remodel	
Investment	11.4MM€	
Date start	Q1 2012	
Date finish	Q3 2014	
Actual status	Completed phase I&II	
Prod. Start	N/A	
New jobs	N/A	

Other comments:

- The project consists of the full interior remodeling of the former Talecris offices
- These offices host Global Bioscience Marketing and Sales management, US Human Resources management, East Region Plasma Procurement organization among other areas

Name of the project	Grifols Movaco Remodel	
Location	Madrid (Spain)	
Project number	21	
Characteristics	Offices and warehouse	
Investment	0.9MM€	
Date start	Jun 2012	
Date finish	Jan 2014	
Actual status	Finished	
Prod. Start	Mar 2014	
New jobs	N/A	



Other comments:

- New Grifols commercial offices and warehouse located in Madrid. This location serves the northern and central part of Spain
- The Governmental Affairs department of the company in Spain is based in this location

Name of the project	Grifols China		
Location	Shanghai (China)		
Project number	22		
Characteristics	Offices		
Investment	0.4MM€		
Date start	May 2013		
Date finish	Jul 2014		
Actual status	On-going		
Prod. Start	N/A		
New jobs	N/A		

Other comments:

- New offices in Shanghai with current space of 350m² to allocate Chinese Sales & distribution
- Currently doubling the size to 600m²

Name of the project	Grifols Italia
Location	Pisa (Italy)
Project number	23
Characteristics	Offices & Warehouse
Investment	1.8MM€
Date start	Oct 2013
Date finish	Jun 2014
Actual status	On-going construction
Prod. Start	Q2 2014 approx
New jobs	N/A



Other comments:

- New offices in Italy with a total 2,750m² to allocate Italian sales & distribution
- Offices, warehouse, -30°C cold box and a +2-8°C warehouse

On-going industrial investments summary: commercial & corporate

Project ID	Location	Name of the project	Total in MM€
19	Dublin (Ireland)	Grifols WWO - Logistic, Packing & Warehouse	45.0
20	Raleigh (USA)	H.Q. Grifols Therapeutics Inc.	11.4
21	Madrid (Spain)	Grifols Movaco Remodel	0.9
22	Shanghai (China)	Grifols China	0.4
23	Pisa (Italy)	Grifols Italia	1.8

Conclusions - investments

- Internal management of the capital investments
 - Facilities design and construction supervision is done by our engineering team internally. Being part of a production group allows us to have a daily and close contact with our production facilities and the process lines that we develop. This continuous feedback of our work gives us an edge in order to combine both practical and common sense solutions with innovative designs and continuous improvement
 - Process machinery for critical operations is designed and developed in house
 - Closer control of the overall project costs
 - Optimized execution time line
- The knowledge of the built facilities remains in the company and is incremented with all the projects we perform
- In house team for the qualification and validation of the new facilities and process lines
- Long term vision. Investments strategy anticipates the business and operations future needs

New Innovative Technology developed by Grifols Engineering

GRIFOLS pioneering spirit

Name of the project	ABO		
Location	N/A	Project number	24

The ABO (Automatic Bottle Opener) is the automatic robotic system developed by Grifols to offer the maximum safety and quality, as plasma is not handled by the operator while the bottles are opened, thereby minimizing the risk of external contamination and also reduced costs with an increased (average 5% plasma recovery) and consistent performance



Name of the project	SF BAGS (Sterile Filling for Biological Products in Plastic Bags)		
Location	N/A	Project number	25

- New flexible container for biological products (Albumin and IVIG) has been developed by Hospital division and the new aseptic filling line for these bags is being developed by Grifols Engineering
- The project is currently pending on the stability data



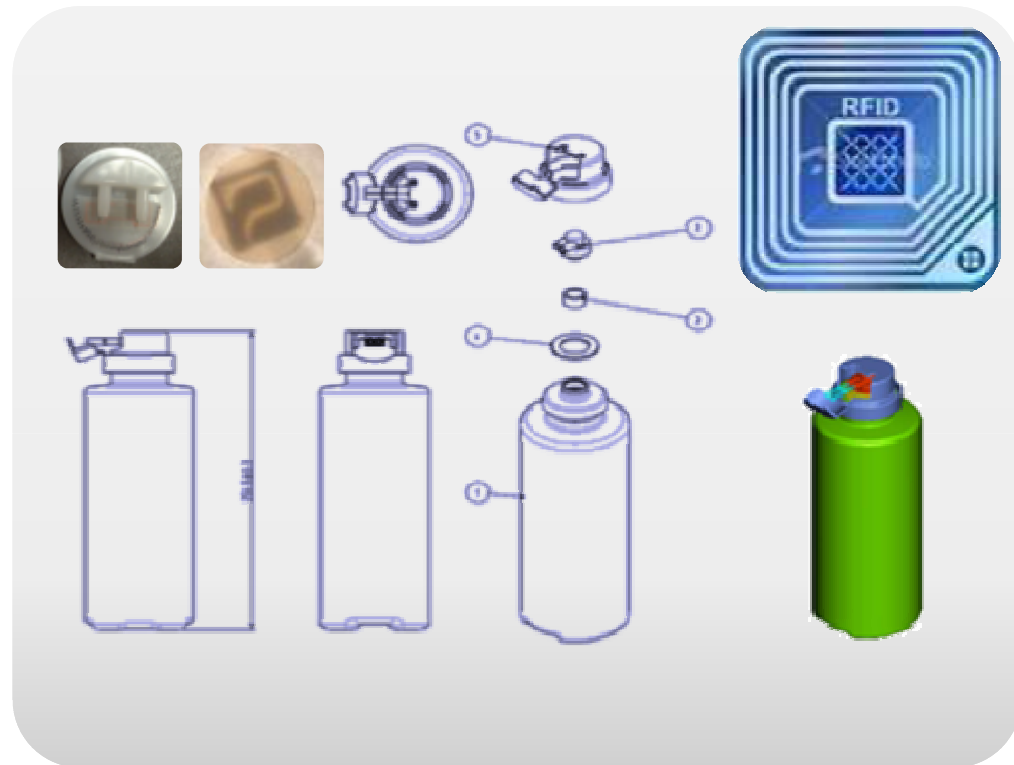
Name of the project	Plasma Sampling (Automatic Plasma Bottle Sampler)		
Location	N/A	Project number	26

- Plasma Bottle Sampling (PBS) is an equipment to automatically extract samples from the plasma bottle into the testing tubes
- The reasons to develop such an equipment were two fold:
 - 1) prevent any potential risk of personnel puncture with bottles, needles and tubes and
 - 2) prevent clerical mistakes when handling test tube labels
- This equipment has been successfully tested in two donor centers, approved by Biomat and will be installed in all donor centers in the next two years



Name of the project	RFID Technology for Plasma Bottles		
Location	N/A	Project number	27

- Grifols has submitted a patent to incorporate RFID in the plasma bottle. Agreements with Fenwall and Haemonetics were signed to incorporate this technology.
- The main objectives of this project are:
 - 1) improve the traceability of each bottle
 - 2) simplify the handling of the plasma bottles when received at the plasma warehouse, when sent for fractionation and when received at the fractionation plant
- Currently, the process is extremely manual : de-palletizing, opening the boxes, bar coding reading bottle by bottle, and vice-versa
- RFID technology permits to obtain all the information contained in a pallet without contact



Conclusions - innovation and technology

- Proprietary Know-How and Expertise
- Technological capacity allowing us to truly perform a development task delivering customized solutions
- Developing solutions to improve safety and efficiency of the processes, products and employees
- Leveraging the different technologies developed in the different business divisions of the group we are able to create innovative solutions
- Pioneering Innovation following R&D developments and setting new market trends in facilities and processing lines

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Plasma Procurement. Quantity, Quality & Safety

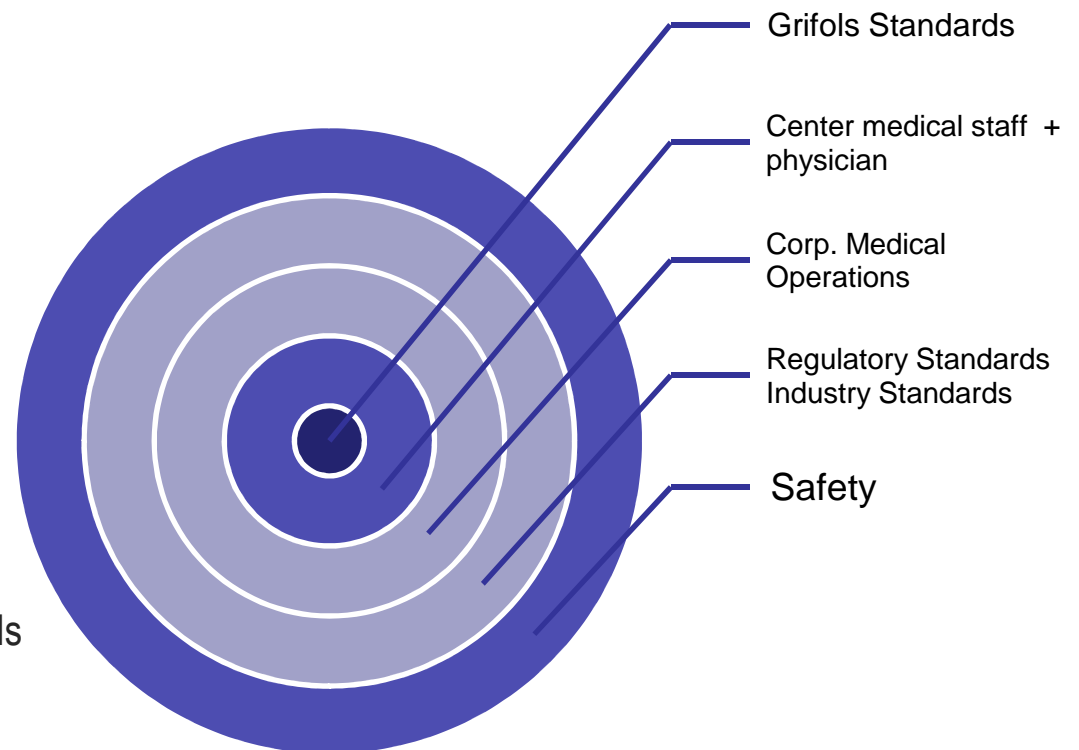
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Plasma Safety and Medical Coverage

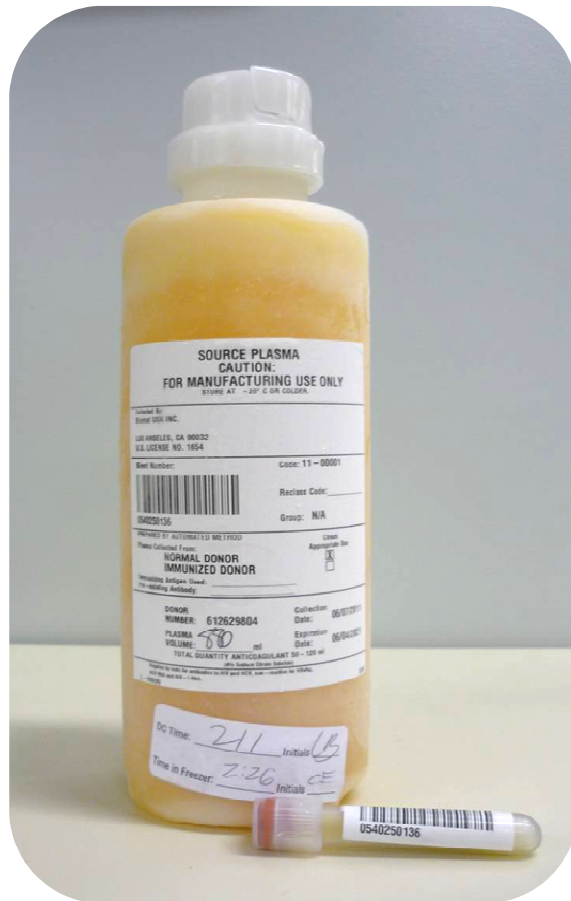
- Marilyn Rosa-Bray, MD -

Safety is the core of our business

- Donor safety and product integrity are key priorities for the Grifols organization
- Despite the logistical challenge, Grifols maintains its standard, that goes beyond regulatory requirements, across all donor centers with more than 25,000 donations a day
- Grifols is leading the industry with the implementation of the most robust medical oversight platform in the industry that exceeds regulatory requirements



Different process, different volume, different qualities



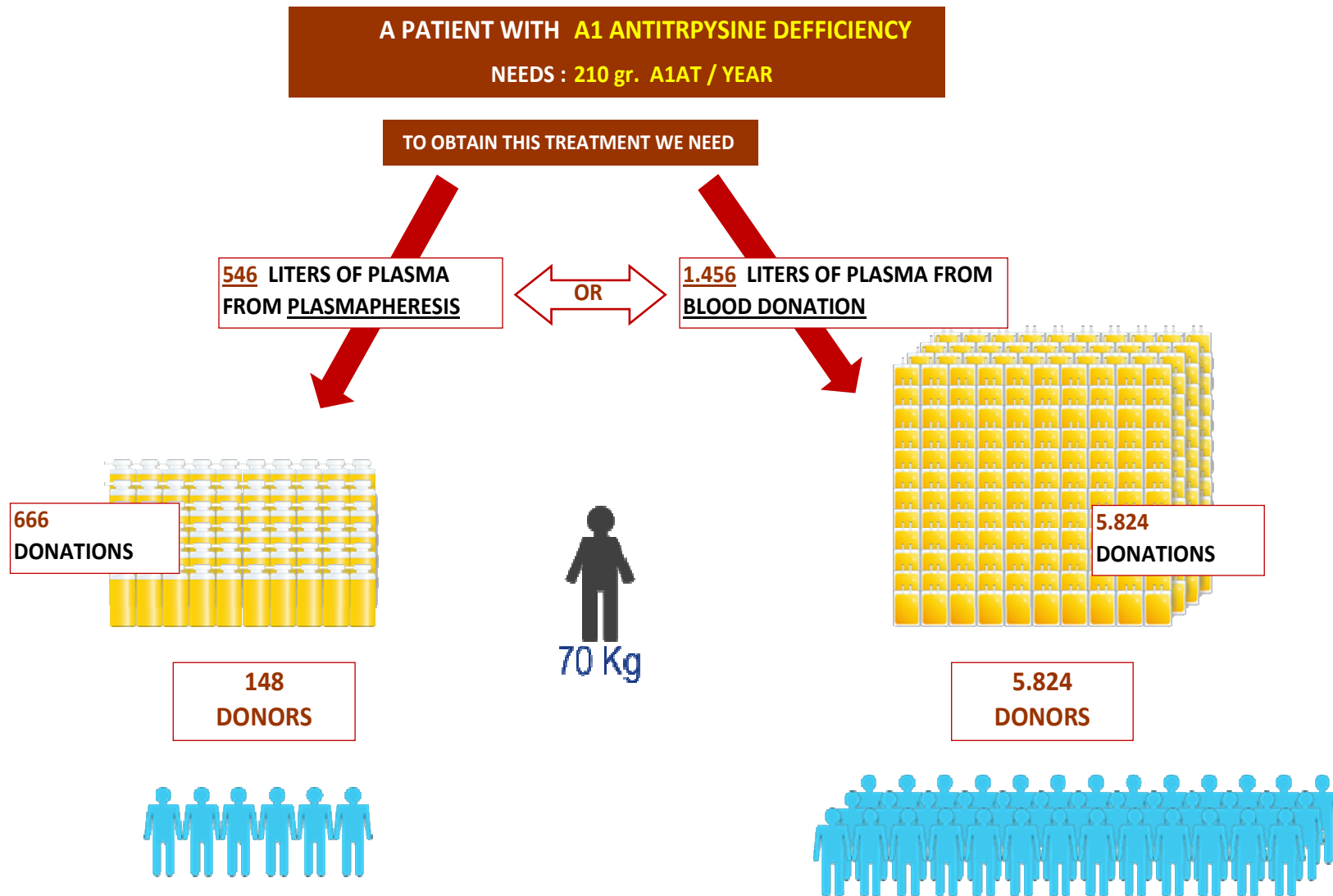
Normal Source Plasma
- Average 830mls



Recovered Plasma
- Average 250mls



Repeat donors: increased safety



Repeat donors: increased safety

- Normal source plasma provides the unique advantage of using donors with multiple donations
- Multiple donations per donor increases safety:
 - Health and laboratory information is not limited to a single donation
 - Capability to monitor donor's health history over prolonged period of time, which can be utilized to identify early signs of disease
 - Multiple laboratory testing opportunities over the course of a longer window of time
 - Increased sensitivity of viral pathogen safety
 - Less number of donors needed
 - Better control of variability

Donor center medical oversight

- The medical operations department for the donor center network includes close to 1,000 individuals (physicians, nurses and other medical staff)
 - Each donor center has a medical team consisting of nursing staff and a medical director
 - Each undergoes Grifols' specific training program, to assure that the standard of work is maintained

- A multi-layered physician oversight system guarantees that every donor, at every center is accepted or deferred following Grifols' standard criteria
 - A corporate medical team, supports the donor center medical teams, establish criterion according to regulations and medical literature, as well as maintaining the biovigilance program
 - The system is capable to respond to any new challenge and implement immediate changes across all Grifols donor centers

Donor center medical oversight (2)

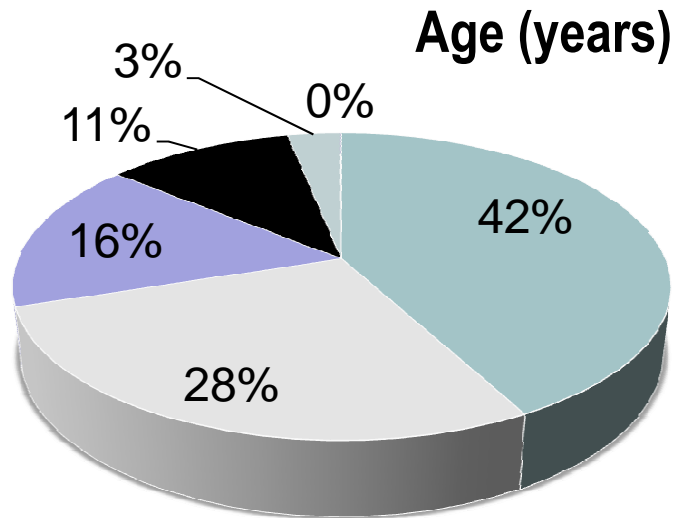
- Corporate Medical Team
 - Robust response system, unique in the industry, available to all donor centers during all hours of operations to ensure standard criterion are maintained for all donor suitability questions
 - Educate and coach center MDs towards unified selection criteria
 - Provide references from medical literature
 - Medical expertise to clarify company practices
 - Industry expertise to support donor health and product safety
 - Multi-state medical licensure to assure uninterrupted donor center operations and emergency coverage and have understanding of unique state to state differences
 - Design, implement and lead research trials in the donor center network

Donor center medical oversight (3)

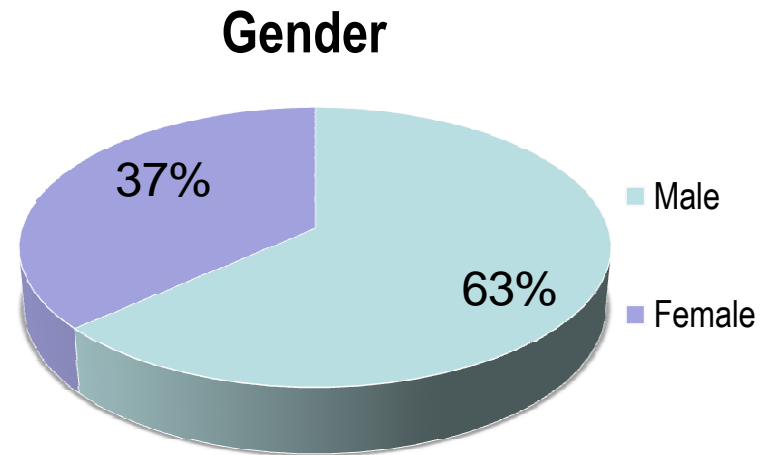
- Center Medical Directors
 - State licensed, certified as Laboratory Director under CLIA US Federal Regulations
 - Certified as Grifols Center Medical Director after completion of Corporate Training Program as well as assessment and approval from Corporate Medical Operations
 - Responsible for the medical oversight, training and certification of the nursing team and the compliance with procedures to safeguard donor's safety and product safety
 - Oversight not limited to medical team, but also conducts medical audits for the for the phlebotomy process and apheresis equipment set up, as well as moderate complexity laboratory tests
 - Quality assurance: Trend analyses for key quality performance indicators of the donation center in order to provide recommendations to the quality team

- Center Medical Staff
 - State licensed. Certified as Grifols medical staff after completion of Corporate Training Program and certification from Center MD
 - Internal and corporate inspections to maintain standardization
 - All processes must follow a strict protocol – different from medical practice where individual judgment can be applied

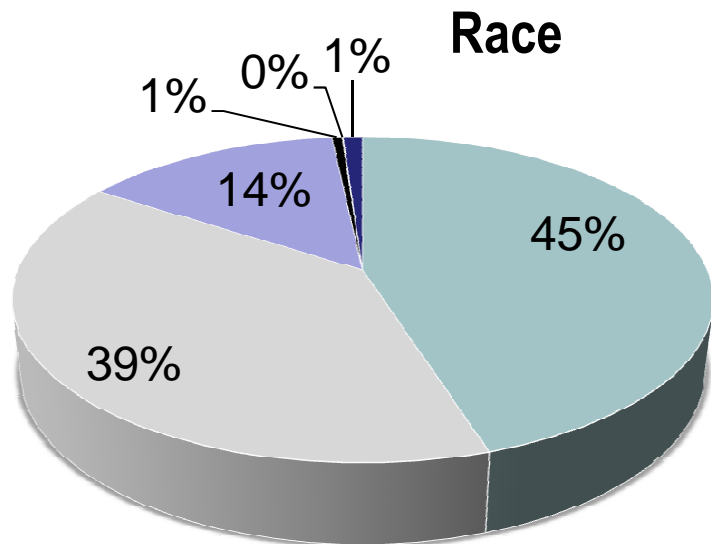
Diverse population with common health foundation: 2013 demographics



- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 65+



- Male
- Female



- Caucasian
- African Ame.
- Hispanic
- Asian
- Indo Asian
- Native American

Summary

- The medical oversight of the Grifols donor centers is unique, and is setting the path for the rest of the industry. Its practice is the most robust, comprehensive and involved in the industry
- Donor selection is a complex process, and often treated in the industry with an individualized approach between facilities. However, the Grifols system is the only program that can assure a standardized and uniform selection process despite multiple geographical locations and donor diversity. This improves both donor safety and product quality
- The multi-layered, collaborative physician oversight of the donor center network provides an unique platform that supports efficiency, and maximizes expertise at the different levels, in order to maintain homogeneous practices even within a fast paced medical environment

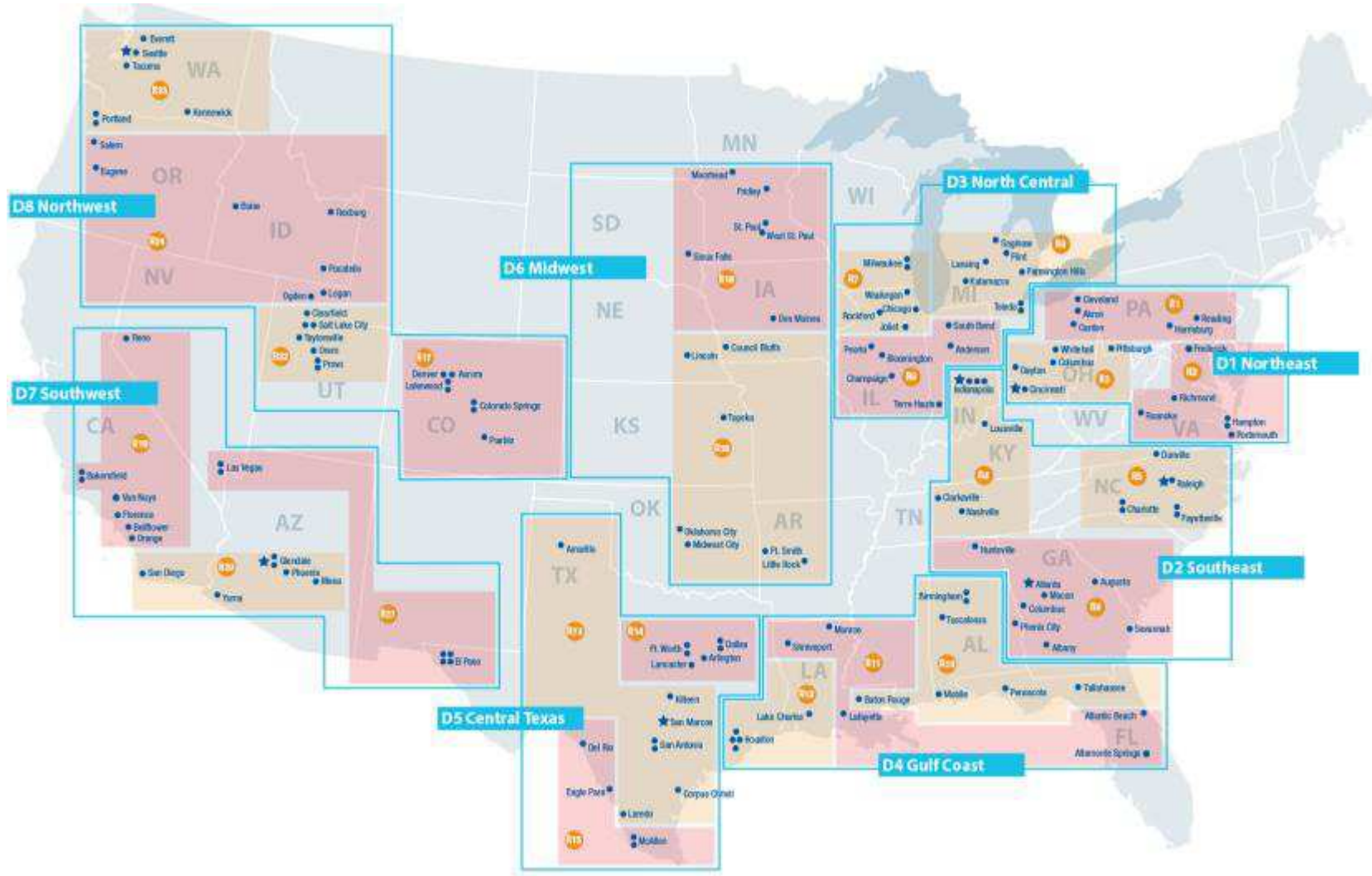
Investors' & Analysts' Meeting Barcelona 2014

Grifols Plasma Operations Update

- Shinji Wada -

Grifols plasma operations

US Donor center network



Grifols plasma operations; Where are we today?

- 150 licensed donor centers network with robust oversight and supporting organization structure
- Critical operating procedures including medical and quality harmonized
- Scalable plasma collection capacity to support growth of fractionation needs



Plasma collection capacity and operational efficiency

- Expansion of center network continues and plasma collection volume per center have increased to fulfill fractionation throughput for the last 3 years
- Current center network has physical capacity to support continued growth of fractionation requirements
- Plasma cost control has been meeting company's expectation
- Continuous capital investment for upgrading donor center facilities and critical supporting infrastructure



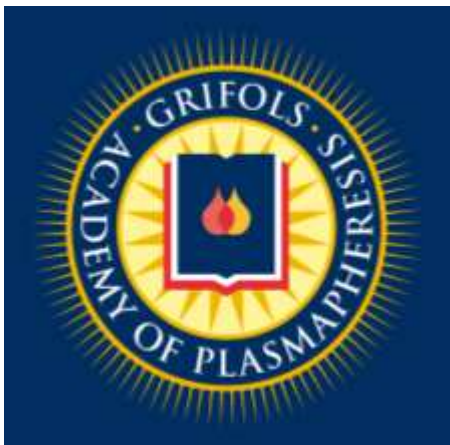
Streamlined plasma testing operation

- All plasma testing has been consolidated to two Texas Laboratories to maximize the merit of scale and efficiencies
- The current twin testing labs model provides solid business continuation platform eradicating various operational risks
- Significant reduction of testing costs continued to be materialized
- The recent Transfusion Diagnostic business acquisition will further enhance future testing platform and competitive edges



Grifols Academy of Plasmapheresis

- Grifols continues to invest in the advancement of the plasma employees, their knowledge, skills and their academic credentials through Grifols Academy of Plasmapheresis programs
- In 2013, the Academy offered 218 specialized educational courses for more than 800 of plasma employees
- The courses include Plasma Science, Medical, Quality Systems, Management skills and other relevant studies for donor center operations
- The Academy is seeking accreditation of these courses with universities and other relevant educational organizations



Future developments

- On-going investment in donor center automation including tailor made center management software and equipments designed by Grifols Engineering for further improvements of operational efficiency
- Aggressive build out of donor center facilities to support long term source plasma requirements. A new facility could be a relocation of an existing center or a newly licensed center for additional capacity
- Expand hyper-immune plasma programs to support value-added specific immune globulin product line
- Carefully evaluate and explore opportunities to collect source plasma outside of the US

Investors' & Analysts' Meeting Barcelona 2014

Plasma Economics and Case Study

- Victor Grifols Deu -

Grifols plasma economics

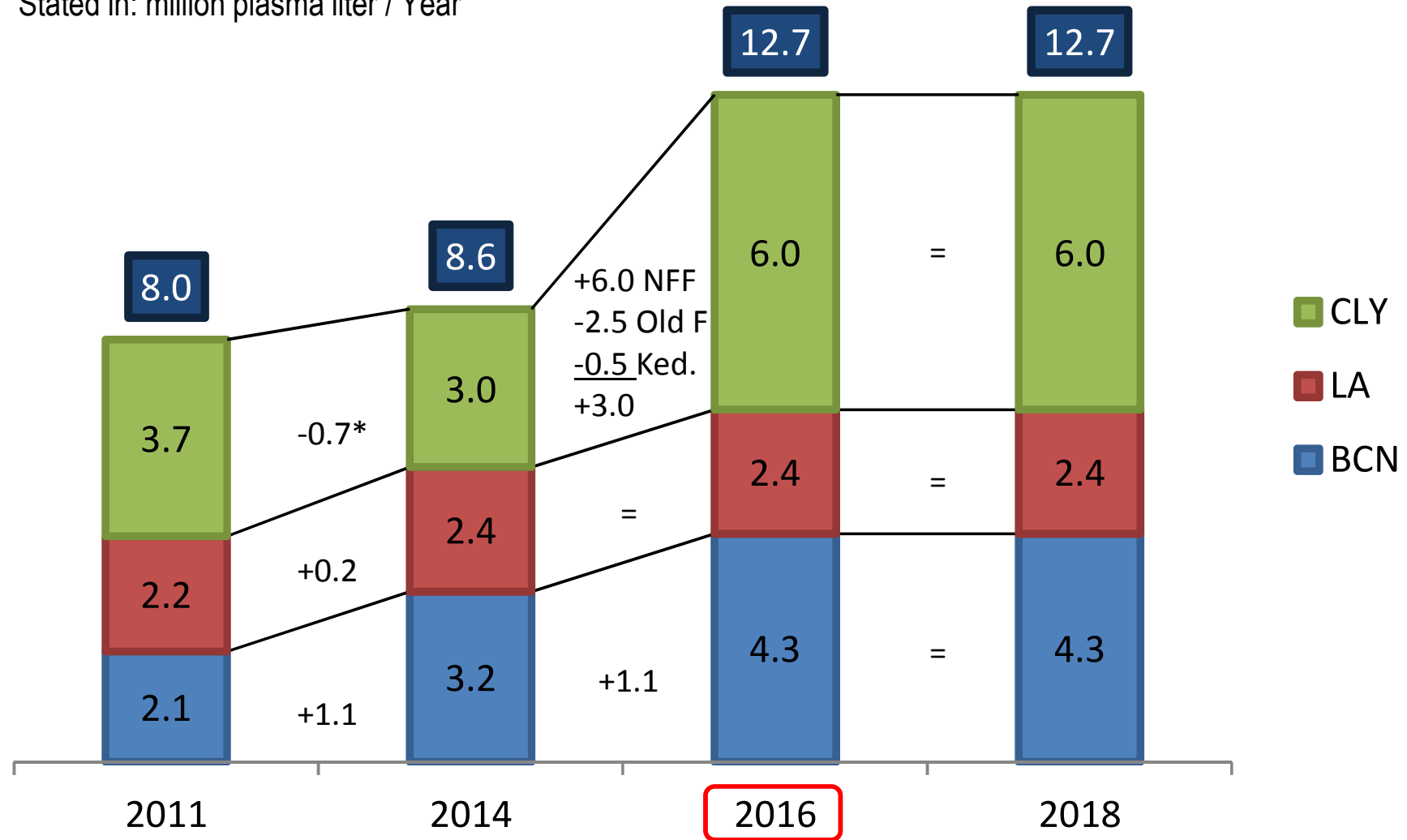
GRIFOLS PLASMA ECONOMICS APPROACH	INSTALLED <u>CAPACITY</u>	USED <u>CAPACITY</u>	LATENT <u>CAPACITY</u>
PLASMA <u>PROCUREMENT</u>			
PLASMA <u>FRACTIONATION</u>	1) DECIDE SOME YEARS IN ADVANCE THE FUTURE GROWTH		
PROTEIN <u>PURIFICATION</u>			
PROTEIN <u>SALE</u>			

LONG TERM STRATEGY

SHORT TERM TACTIC

Plasma fractionation installed capacity: Planned in advance

Stated in: million plasma liter / Year



*Melville fractionation plant (1.2ML) transferred to Kedrion in July 2013. CFA in place for 0.5ML in 2014.

Grifols plasma economics

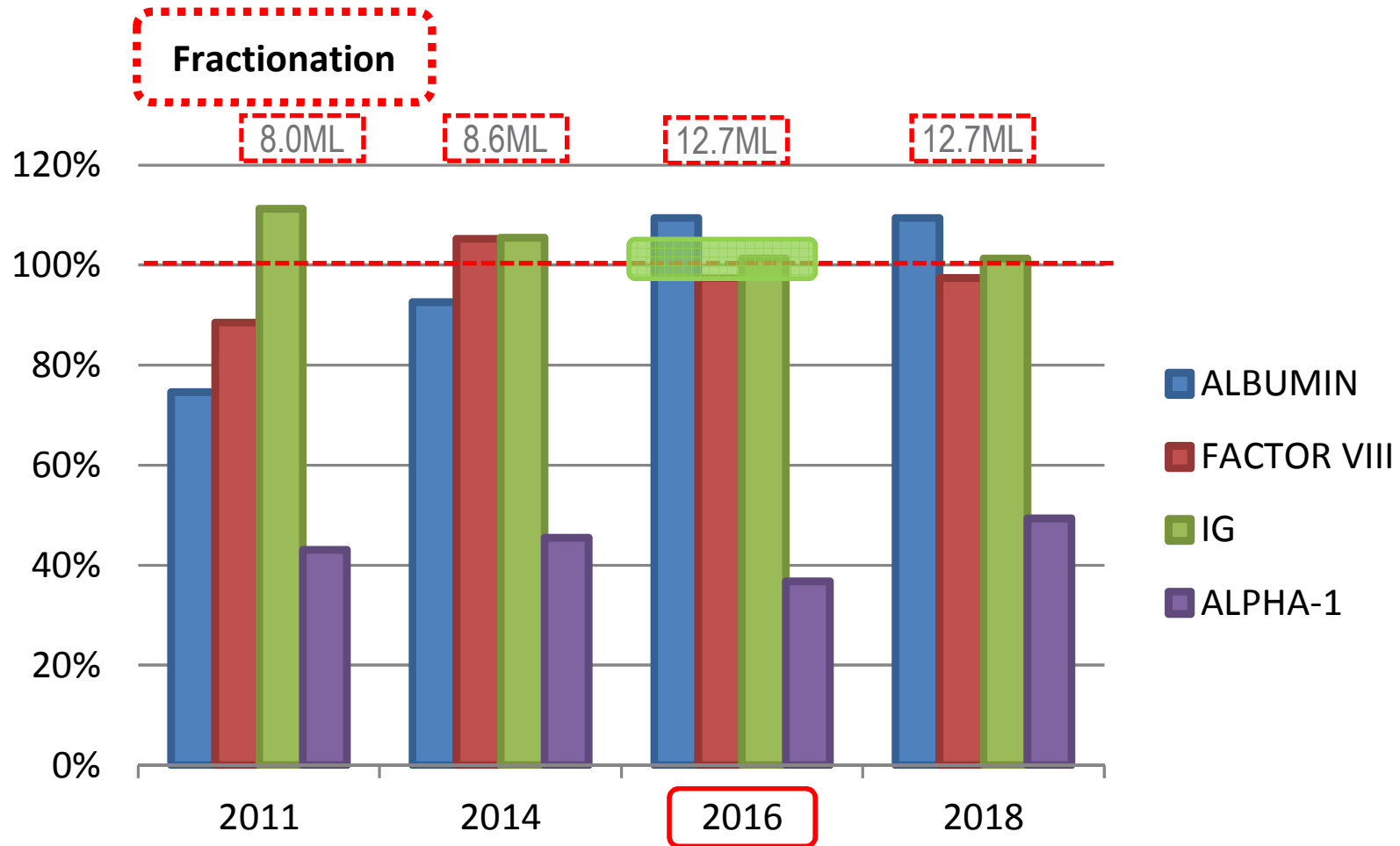
GRIFOLS PLASMA ECONOMICS APPROACH	INSTALLED <u>CAPACITY</u>	USED <u>CAPACITY</u>	LATENT <u>CAPACITY</u>
PLASMA <u>PROCUREMENT</u>			
PLASMA <u>FRACTIONATION</u>	1) DECIDE SOME YEARS IN ADVANCE THE FUTURE GROWTH		
PROTEIN <u>PURIFICATION</u>	2) NEED TO BE BALANCED WITH FRACTIONATION IN TERMS OF PLASMA LITERS EQUIVALENT (PLE)		
PROTEIN <u>SALE</u>			

LONG TERM STRATEGY

SHORT TERM TACTIC

Protein purification installed capacity: Aligned with fractionation

SHOWN AS COMPARISON TO PLASMA FRACTIONATION CAPACITY



Grifols plasma economics

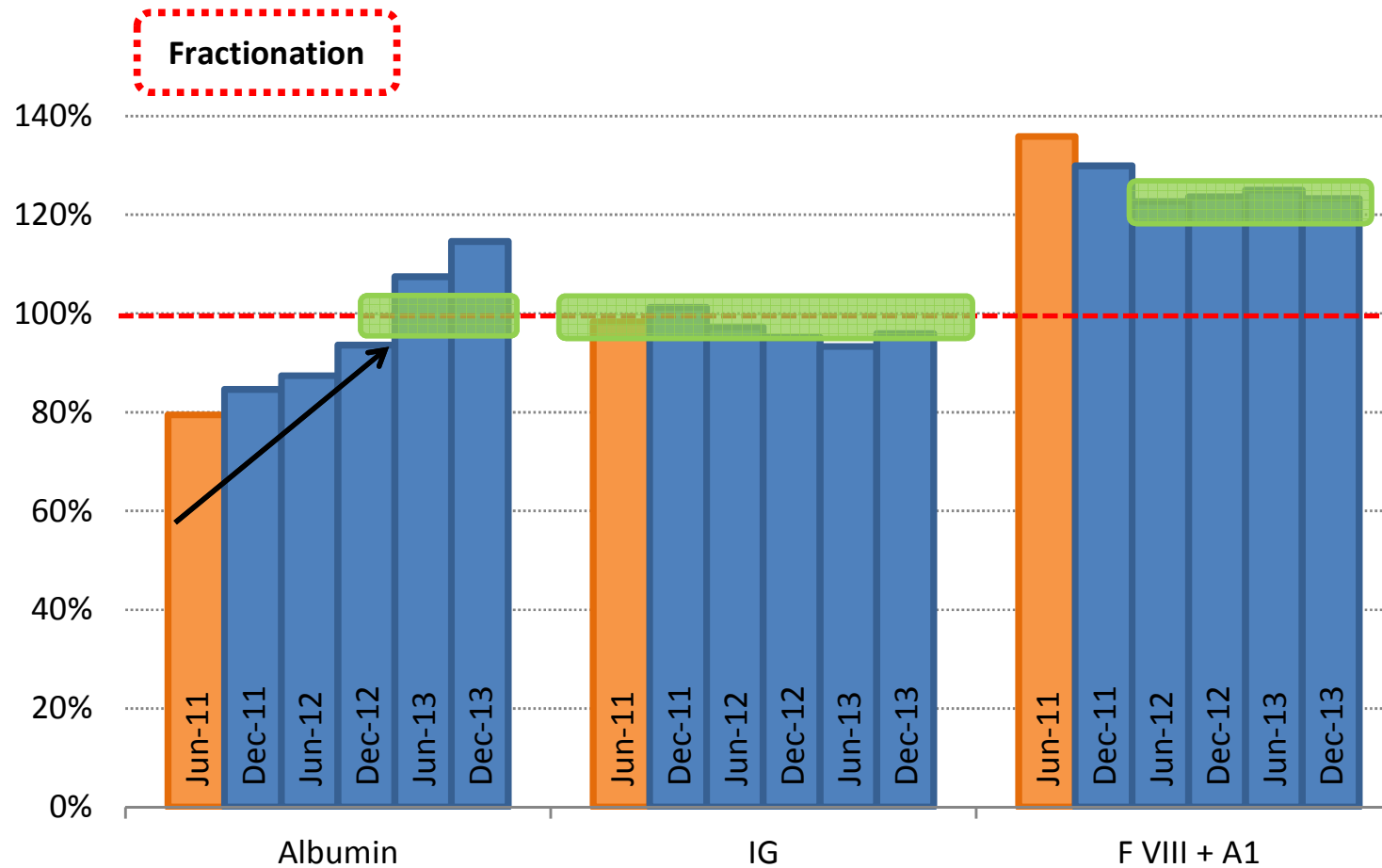
GRIFOLS PLASMA ECONOMICS APPROACH	INSTALLED <u>CAPACITY</u>	USED <u>CAPACITY</u>	LATENT <u>CAPACITY</u>
PLASMA <u>PROCUREMENT</u>	3) ADEQUATE CURRENT PLASMA CENTER NETWORK AS A BASE TO INCREASE SUPPLY ACCORDINGLY		3.a) ADEQUATE CURRENT PLASMA CENTER NETWORK AS A BASE TO INCREASE SUPPLY ACCORDINGLY
PLASMA <u>FRACTIONATION</u>	1) DECIDE SOME YEARS IN ADVANCE THE FUTURE GROWTH	3) FOR SUCH YEAR: BALANCE WITH PURIFICATION	1.a) & 2.a) NEEDED SOME YEARS IN ADVANCE TO MEET FUTURE GROWTH
PROTEIN <u>PURIFICATION</u>	2) NEED TO BE BALANCED WITH FRACTIONATION IN TERMS OF PLASMA LITERS EQUIVALENT (PLE)	2) FOR SUCH YEAR: LIMIT ALL TO THE LOWEST OF THE TOP 3 PROTEIN EXPECTED SALES	
PROTEIN <u>SALE</u>	4) MAKE SURE WE CAN SUPPLY OUR CURRENT MARKETS	1) EACH YEAR: AT LEAST 3 PROTEIN PLE EQUILIBRIUM TO ASSURE INCOME PER LITER OPTIMIZATION	4.a) ADEQUATE GEOGRAPHIC EXPANSION: ASSURE THAT WE CAN SUPPLY IN THE LT THE NEW MARKETS

LONG TERM STRATEGY

SHORT TERM TACTIC

Protein sale evolution: Focus on plasma utilization balance

SHOWN AS COMPARISON TO PLASMA FRACTIONATION USE (in LTM PLE)



Grifols plasma economics

GRIFOLS PLASMA ECONOMICS APPROACH	INSTALLED <u>CAPACITY</u>	USED <u>CAPACITY</u>	LATENT <u>CAPACITY</u>
<u>PLASMA PROCUREMENT</u>	3) ADEQUATE CURRENT PLASMA CENTER NETWORK AS A BASE TO INCREASE SUPPLY ACCORDINGLY	4) FOR SUCH YEAR: BALANCE WITH FRACTIONATION NEEDS IN ORDER TO OBTAIN OPTIMUM INVENTORY MANAGEMENT	3.a) ADEQUATE CURRENT PLASMA CENTER NETWORK AS A BASE TO INCREASE SUPPLY ACCORDINGLY
<u>PLASMA FRACTIONATION</u>	1) DECIDE SOME YEARS IN ADVANCE THE FUTURE GROWTH	3) FOR SUCH YEAR: BALANCE WITH PURIFICATION	1.a & 2.a) NEEDED SOME YEARS IN ADVANCE TO MEET FUTURE GROWTH
<u>PROTEIN PURIFICATION</u>	2) NEED TO BE BALANCED WITH FRACTIONATION IN TERMS OF PLASMA LITERS EQUIVALENT (PLE)	2) FOR SUCH YEAR: LIMIT ALL TO THE LOWEST OF THE TOP 3 PROTEIN EXPECTED SALES	
<u>PROTEIN SALE</u>	4) MAKE SURE WE CAN SUPPLY OUR CURRENT MARKETS	1) EACH YEAR: AT LEAST 3 PROTEIN PLE EQUILIBRIUM TO ASSURE INCOME PER LITER OPTIMIZATION	4.a) ADEQUATE GEOGRAPHIC EXPANSION: ASSURE THAT WE CAN SUPPLY IN THE LT THE NEW MARKETS

Intermediate Paste

Paste cross-licensing among facilities is key to achieve manufacturing flexibility optimization

LONG TERM STRATEGY

SHORT TERM TACTIC

Paste cross-licensing map: Manufacturing flexibility

PASTE:	FR. V (ALBUMIN)									CRYO (F VIII)									FR. II+III (IG)									FR. IV1 (ALPHA-1)										
	BCN			LA			CLY			BCN			LA			CLY			BCN			LA			CLY													
PURIFIED IN:	B	L	C	B	L	C	B	L	C	B	L	C	B	L	C	B	L	C	B	L	C	B	L	C	B	L*	C	B	L*	C	B	L*	C					
2010											X																			X			X			X		
2011											X																			X			X			X		
2012											X																			X			X			X		
2013											X																			X			X			X		
2014											X																			X			X			X		
2015											X																			X			X			X		
2016											X																			X			X			X		
2017											X																			X			X			X		

Licensed
In process
X: Not needed

← Desired cross-licensing achieved →

* No Alpha-1 purification facility in LA

Plasma utilization P&L impact: “Balanced vs Imbalanced”

Example for illustration purposes only

		YEAR 1	BALANCED GROWTH	IMBALANCED GROWTH
PLASMA	THROUGHPUT	2,000,000 L	5% CAGR	10% CAGR
PLASMA+MFG	COST	210 \$/L		
ALBUMIN	YIELD	24 G/L		
	A.S.P.	3 \$/G		
	UTILIZATION	100%	100%	63%
	GRAMS SOLD	48,000,000 G	Increase 5%/YR	Increase 5%/YR
	REVENUE	\$144,000,000	5% CAGR	
F VIII	YIELD	150 IU/L		
	A.S.P.	0.35 \$/IU		
	UTILIZATION	100%	100%	63%
	GRAMS SOLD	300,000,000 IU	Increase 5%/YR	Increase 5%/YR
	REVENUE	\$105,000,000	5% CAGR	
IG	YIELD	4 G/L		
	A.S.P.	65 \$/G		
	UTILIZATION	100%	100%	100%
	GRAMS SOLD	8,000,000 G	Increase 5%/YR	Increase 10%/YR
	REVENUE	\$520,000,000	5% CAGR	
P&L	REVENUE	\$769,000,000	5% CAGR	
	CoGS	\$420,000,000	5% CAGR	
	GROSS PROFIT	\$349,000,000	5% CAGR	
		45%		
	R&D ⁽¹⁾	\$38,450,000	5% CAGR	
	5%			
SG&A ⁽²⁾	\$169,180,000	3% CAGR		
	22%			
EBIT	\$141,370,000	7% CAGR		
	18%			

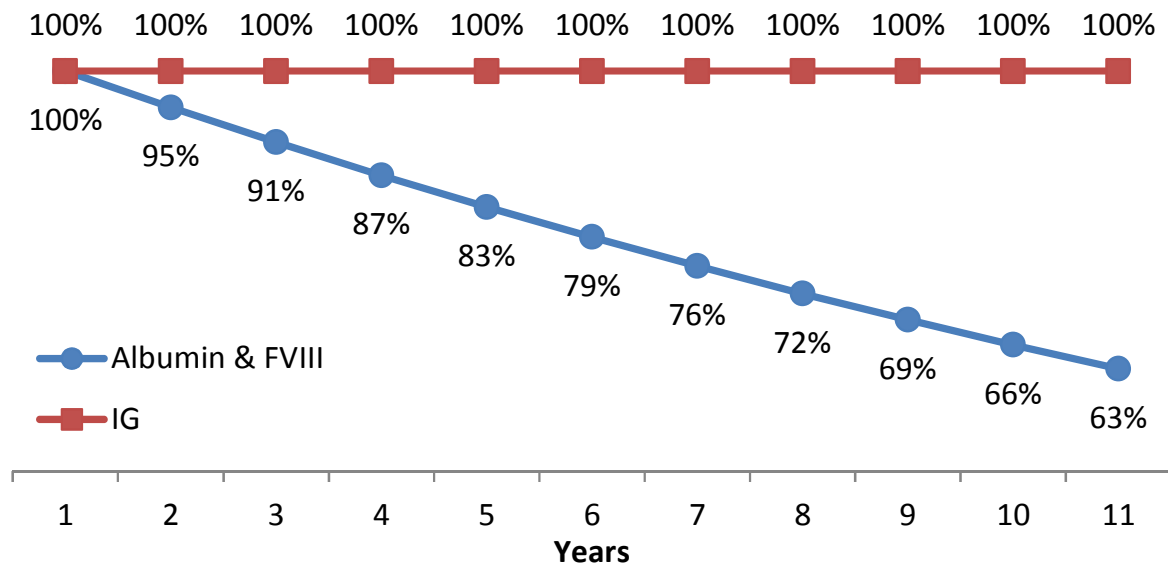
(1) 5% of Revenues throughout the period

(2) YR/YR increase modeled as 200 bps lower than Revenue growth

*CAGR and utilization in 10 YR

Plasma utilization P&L impact: "Balanced vs Imbalanced"

Plasma Utilization in "Imbalanced" Scenario



Plasma utilization P&L impact: “Balanced vs Imbalanced”

Example for illustration purposes only

		YEAR 1	BALANCED GROWTH	IMBALANCED GROWTH
PLASMA	THROUGHPUT	2,000,000 L	5% CAGR	10% CAGR
	PLASMA+MFG COST	210 \$/L		
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	UTILIZATION	100%	100%	63%
	GRAMS SOLD	300,000,000 IU	Increase 5%/YR	Increase 5%/YR
	REVENUE	\$105,000,000	5% CAGR	5% CAGR
IG	YIELD	4 G/L		
	A.S.P.	65 \$/G		
	UTILIZATION	100%	100%	100%
	GRAMS SOLD	8,000,000 G	Increase 5%/YR	Increase 10%/YR
	REVENUE	\$520,000,000	5% CAGR	10% CAGR
P&L	REVENUE	\$769,000,000	5% CAGR	9% CAGR
	CoGS	\$420,000,000	5% CAGR	10% CAGR
	GROSS PROFIT	\$349,000,000	5% CAGR	7% CAGR
		45%		
	R&D ⁽¹⁾	\$38,450,000	5% CAGR	9% CAGR
		5%		
SG&A ⁽²⁾	\$169,180,000	3% CAGR	7% CAGR	
	22%			
EBIT	\$141,370,000	7% CAGR	6% CAGR	
	18%			

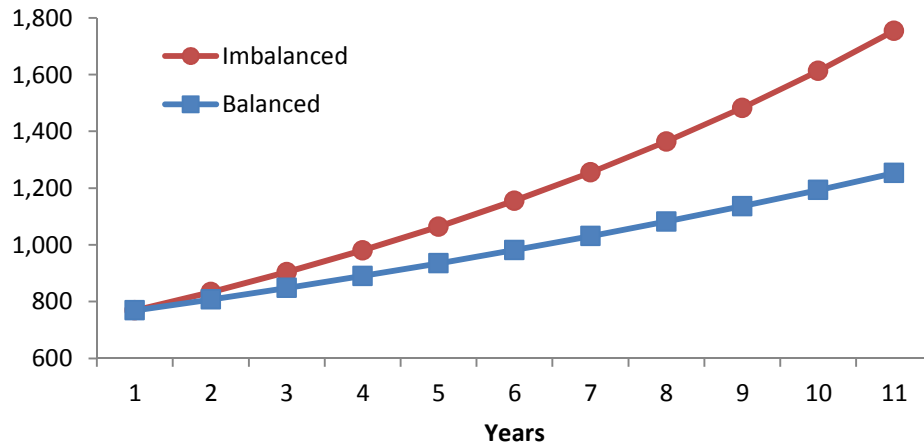
(1) 5% of Revenues throughout the period

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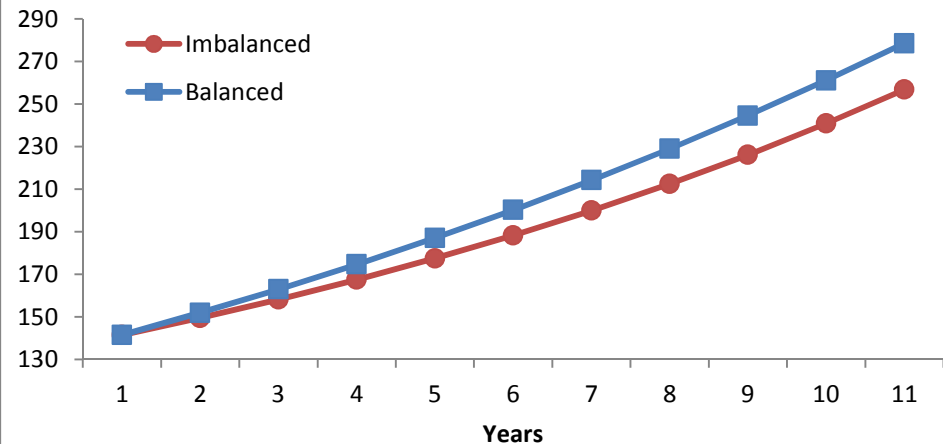
*CAGR and utilization in 10 YR

Plasma utilization P&L impact: “Balanced vs Imbalanced”

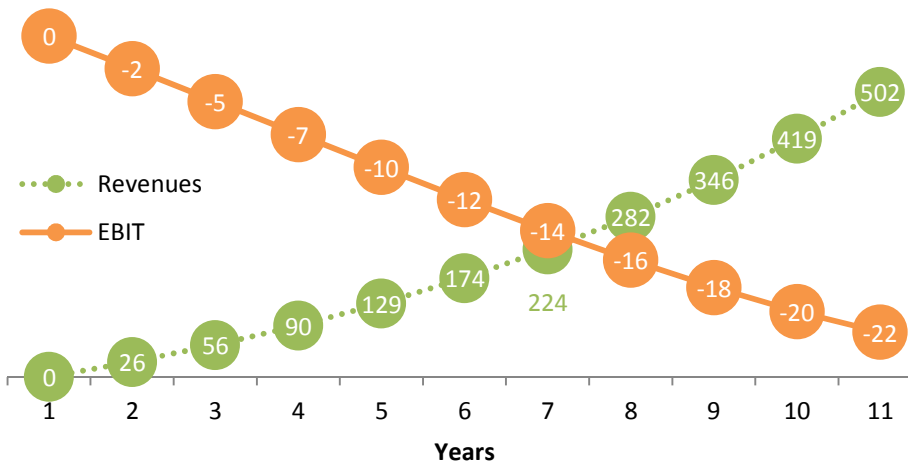
Total Revenues (\$M)



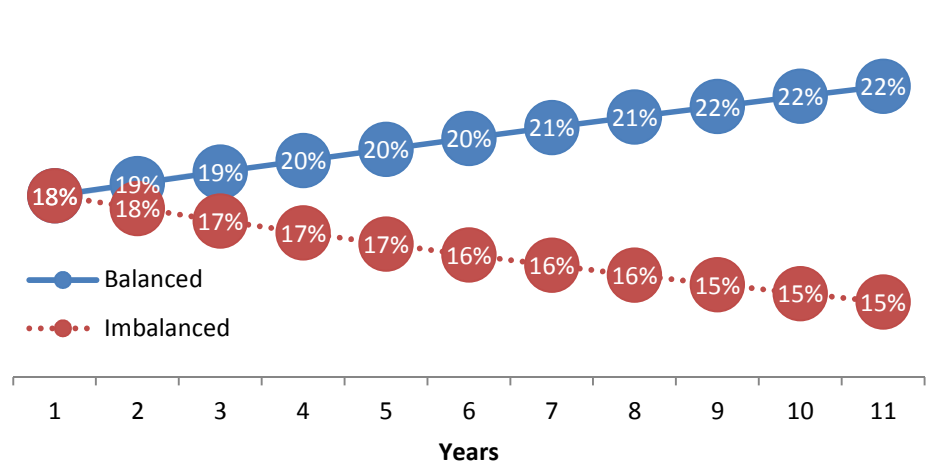
Total EBIT (\$M)



GAP in: Revenues & EBIT (\$M)



GAP in: % EBIT Margin



Grifols plasma economics

Key messages

➤ Long term strategy:

- Ensure the equilibrium in the Installed capacities of Plasma Fractionation, Protein Purification and Plasma Procurement.
- Latent capacity is needed to support a sustained growth of the business.
- Full manufacturing flexibility for all plasma fractions obtained when cross-licensing is achieved.

➤ Short term tactic: Balance the plasma use of at least 3 proteins (1 + 1 + $\frac{1}{2}$ + $\frac{1}{2}$) in terms of sales to optimize Income per Liter.

➤ Sustainable and profitable growth based on plasma utilization balance.

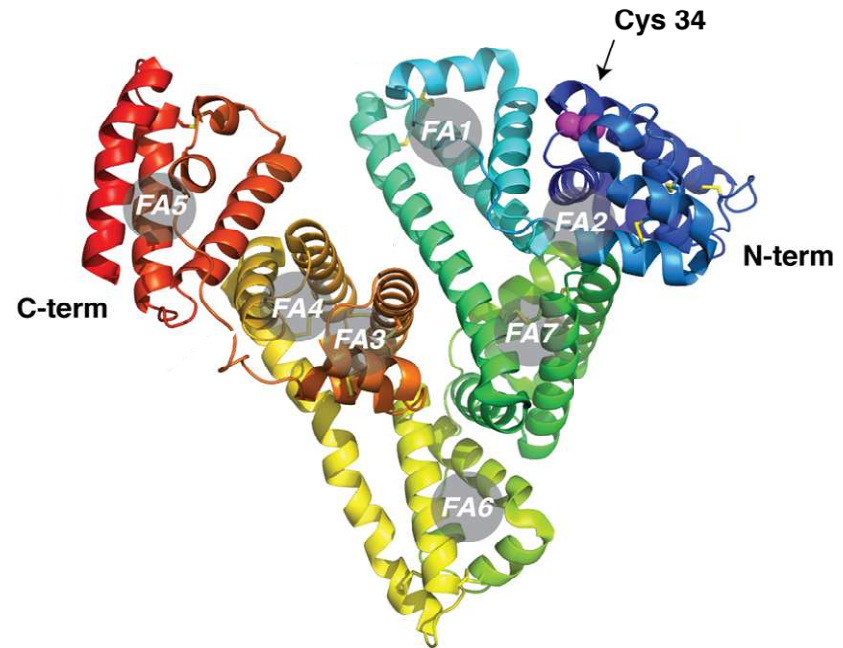
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Albumin, Haemopheresis and other related topics

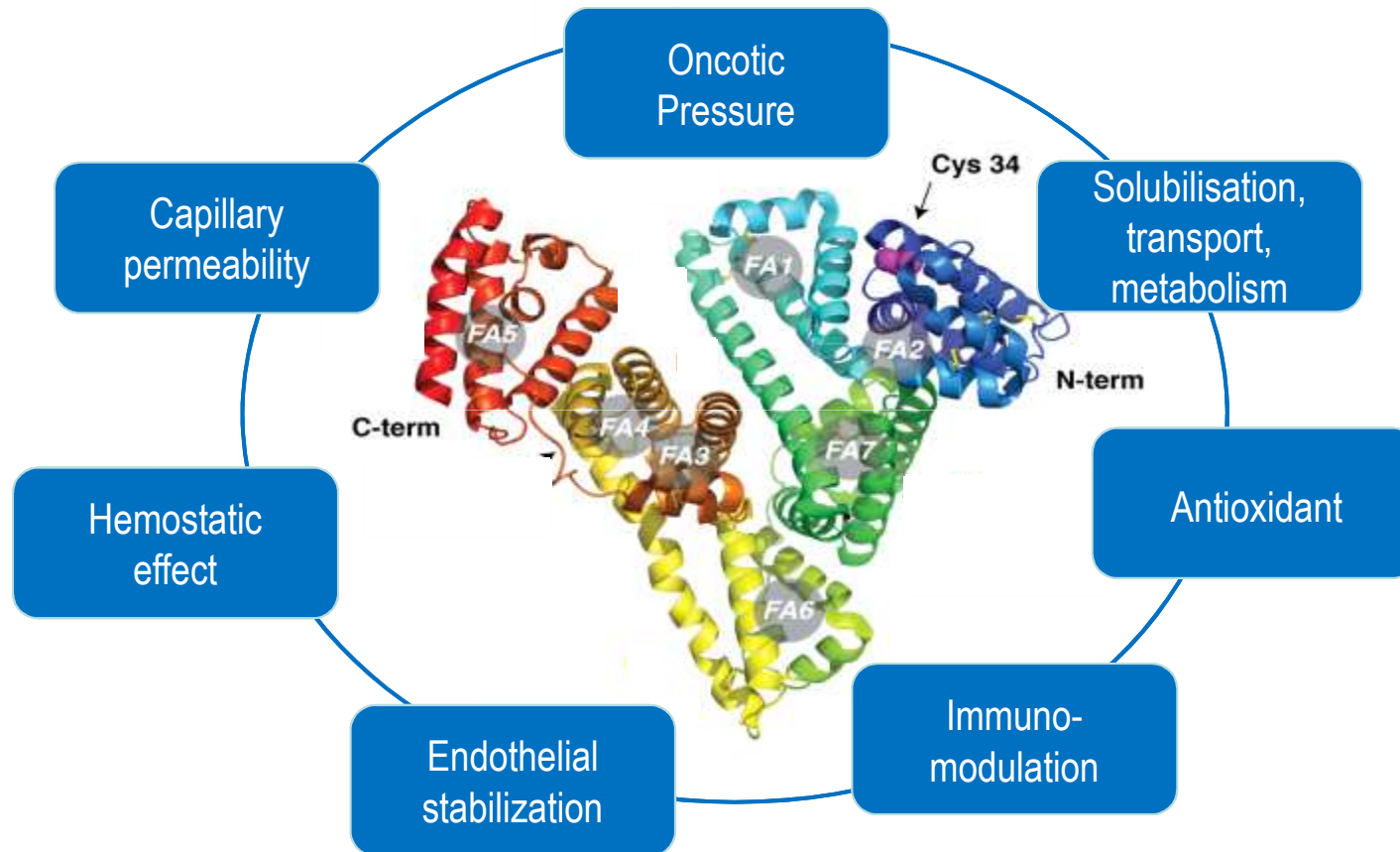
- Montserrat Costa & Antonio Páez -

Albumin molecule

- Highly soluble protein
- Synthesized in the liver at the rate of 12 - 25 g/day
- Accounts for more than 50% of the proteins found in plasma (30-50 g/L)
- Modern use established during 2nd World War: plasma substitute
- First reported administration to patients with cirrhosis: Janeway et al. J Clin Invest 1944; 23:465-491



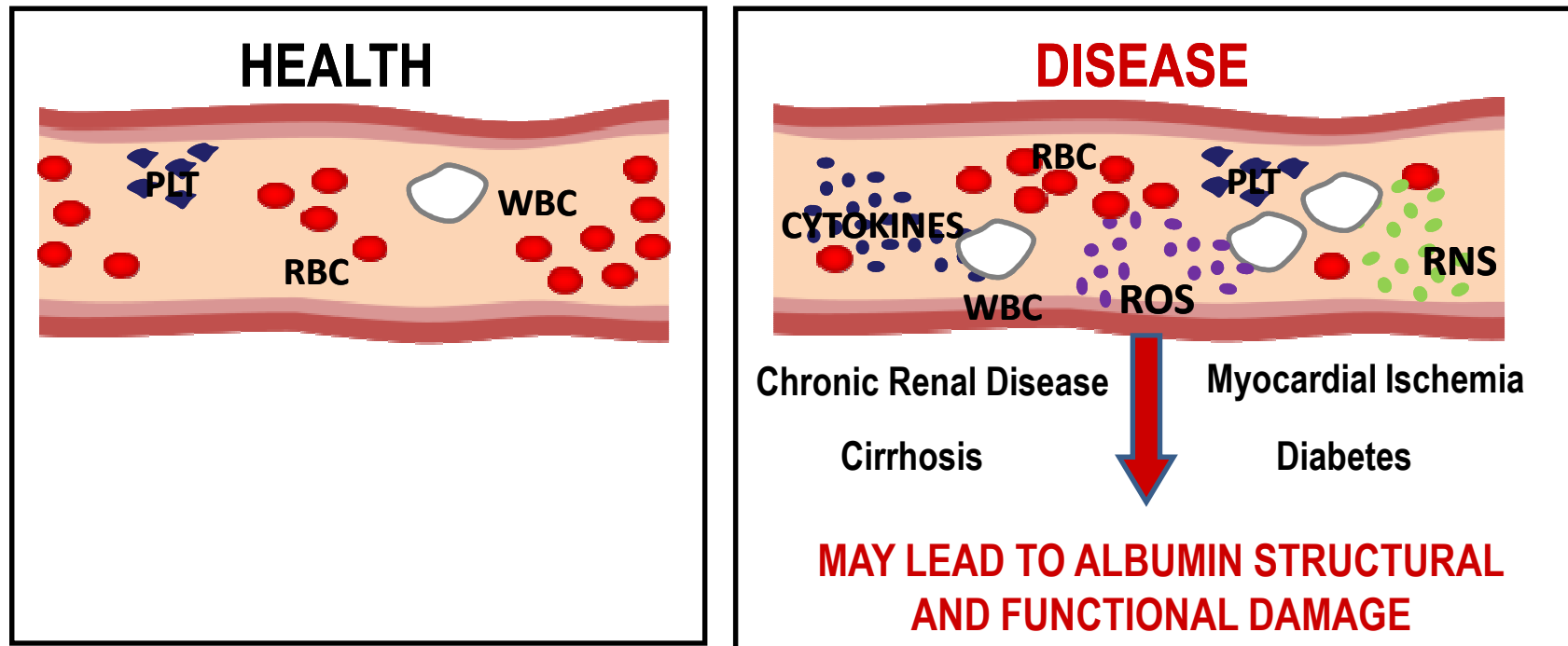
Albumin: more than just a plasma volume expander



R. García-Martínez et al. *Hepatology*. 2013. 58(5):1836-46

Albumin: quantity and quality

- Albumin is the principal protein in human plasma and has multiple effects, but...



EFFECTIVE ALBUMIN CONCENTRATION: (sufficient + functional) albumin

R. Jalan and M. Bernardi. *J. Hepatology*. 2013. 59(3):918-20

Albumin: a new therapeutic agent

Evidences and on-going research

- MULTIPLE NEW OPPORTUNITIES
- LIVER DISEASES
- ALZHEIMER DISEASE

Albumin: a new therapeutic agent

MULTIPLE NEW OPPORTUNITIES: on-going external and internal preliminary research on potential new albumin applications:

- **Cardioembolic and cryptogenic ischemic strokes** (Xu W-H et al. Stroke 2014; 45:00-00)
- **Chronic ischemic heart failure** (*Ellidag et al Redox Report 2014; Vol.0, N.0: 1-6*)
- **Familial amyloidotic polyneuropathy** (*Kugimiya T et al. 2011; Laboratory Investigation 1-10*)
- **Systemic lupus erythematosus** (*Sheikh Z at al. Autoimmunity 2007; 40 (7): 512-520*)

Albumin: a new therapeutic agent

MULTIPLE NEW OPPORTUNITIES: on-going external and internal preliminary research on potential new albumin applications:

- **Diabetes** (Koga M et al. The Journal of Medical Investigation 2013; 60:41-45; (Isshiki K et al. Therapeutic Apheresis and Dialysis 2013. doi:10.1111/1744-9987.12123)
- **Chronic renal disease** (Matsumaya Y. Clin Expl Nephrol. 2009; doi. 10/1007:s10157-009-0161-y; Donadio C. Clinica Chimica Acta 2011; doi.10/1016/j.cca.2011.11.009)
- **Hypertension** (Oda E. Intern Med 2014; 53:655-660)
- **Spinal cord injury** (PLoS one 2011; 6 (10): e26107)

Albumin: a new therapeutic agent

Evidences and on-going research

- MULTIPLE NEW OPPORTUNITIES

- LIVER DISEASES
- ALZHEIMER DISEASE

The increase in life-expectancy has fostered the incidence of aging related diseases, characterized by a high oxidative stress

Albumin, the main plasma antioxidant, may play a role as a therapeutic agent

Albumin: a potential therapeutic agent in liver diseases

Evidences and on-going research

Management of ascitis

- 6-8 g albumin per L of ascitic fluid for paracentesis >5-6 L

Spontaneous bacterial peritonitis

- 1.5 g/kg bw on day 1 and 1g/kg bw on day 3 (max. 150 and 100 g)

Hepatorenal Syndrome

- Loading dose: 1g/kg bw followed by 20-40 g

V. Arroyo et al. *Journal of Hepatology*. 2014. doi: <http://dx.doi.org/10.1016/j.jhep.2014.04.012>

Albumin: a therapeutic agent in liver diseases

Evidences and on-going research

IG0802

CLINICAL INVESTIGATION EVALUATING THE EFFECTS OF THE LONG TERM ADMINISTRATION OF ALBUMIN 20% ON CARDIOCIRCULATORY AND RENAL FUNCTION AND HEPATIC HAEMODYNAMIC IN PATIENTS WITH ADVANCED CIRRHOSIS AND ASCITES

Principal Investigator: Vicente Arroyo, MD

Phase IV Prospective, open, non-controlled, multi-center pilot study

Study sites: H. Clínic, Barcelona; H. Santa Creu i Sant Pau, Barcelona; H. del Mar, Barcelona; H. Germans Trias i Pujol, Badalona; H. Ramón y Cajal, Madrid; H. Gregorio Marañón, Madrid

Main goal: To evaluate the effects of long-term albumin administration on systemic and renal circulation and on hepatic hemodynamic in patients with liver cirrhosis and ascites

Sample size and status: 32 patients recruited and finished

Data analysis on-going

Albumin: a therapeutic agent in liver diseases

Evidences and on-going research

IG0905

EFFECTS OF PLASMA EXCHANGE ON THE FUNCTIONAL CAPACITY OF SERUM ALBUMIN, CIRCULATORY DISFUNCTION, RENAL AND CEREBRAL FUNCTION, IN CIRRHOTIC PATIENTS WITH “ACUTE-ON-CHRONIC LIVER FAILURE”

Principal Investigator: Vicente Arroyo, MD

Phase IV Prospective, open, non-controlled, single-center pilot study

Study site: H. Clínic, Barcelona

Main goal: To evaluate the effects of plasma exchange with albumin 5% on the functional capacity of albumin

Sample size and status: 12 patients recruited, 8 completed

Data from the 8 patients completed suggest potential survival improvement versus historical controls. A phase III trial is planned to be set up during 2014

Albumin: a therapeutic agent in liver diseases

- **Alterations in the functional capacity of albumin is associated with increased risk of mortality in decompensated cirrhotic patients and analbuminemic animal models**
 - (Jalan R et al. *Hepatology* 2009; 50: 555-564)
 - (García Martínez R & Jalan R; *EASL2014*)

- **Progressive albumin oxidation is a marker of liver disease progression**
 - (Oettl K et al., *Biochim Biophys Acta* 2008; 1782:469-473)
 - (Stauber RE et al., *Therapeutic Apheresis and Dialysis* 2014; 18 (1): 74-78)

- **Recent evidences supporting beneficial effects of albumin infusion in patients with decompensated liver cirrhosis**
 - (*Liver International* 2014; doi: 10.1111/liv.12528)
 - (V. Arroyo and R Moreau, *Nature Medicine* 2014, 20 (5): 467-469; O'Brien et al, *Nature Medicine* 2014, 20 (5): 518-523)
 - (V. Arroyo et al. *J. Hepatology* 2014, doi: <http://dx.doi.org/10.1016/j.jhep.2014.04.012>)

Albumin: a new therapeutic agent

Evidences and on-going research

- MULTIPLE NEW OPPORTUNITIES
- LIVER DISEASES
- ALZHEIMER DISEASE

Albumin: a potential therapeutic agent for Alzheimer's disease

Initial observations

1. Soluble small oligomeric forms of A β (even more toxic than fibrils) are increased in Alzheimer's disease brains. (*Klein et al. Trends Neurosci, 2001*)

2. In plasma, about 90% of A β is bound to albumin (*Biere et al. J Biol Chem, 1996*)

A β carrier proteins may play an important role in preventing the formation of A β aggregates. (*Bohrmann et al. J Biol Chem 274: 15990, 1999*)

3. A β levels in plasma are a "pool" in dynamic equilibrium between peripheral and cerebral levels on the one hand and clearance on the other (*Kuo et al. Biochem Biophys Res Commun, 2000*)

Albumin may play an important role in A β aggregation

A β binding proteins in plasma could shift the CNS/plasma A β equilibrium toward the plasma and facilitate CNS A β clearance (*De Mattos et al. J Neurochem, 2002*)

Can we remove A β bound albumin from plasma using plasma exchange and replace with therapeutic albumin?

Albumin: a potential therapeutic agent for Alzheimer's disease

Additional support

- AD patients **appear to have significantly lower plasma albumin levels. AD Scores of MMSE-K show positive correlation with albumin levels.** The plasma antioxidant level can be associated with the cognitive functions in AD. (*Kim et al. Int J Geriat Psychiatry, 2006; Cankurtaran et al. JAD, 2012*)
- Although **HSA*** is at substantially lower levels than in blood plasma, **3 μ M still represents a major constituent of the CSF and the brain interstitium...** At micromolar cerebrospinal fluid levels, HSA inhibits the kinetics of A β fibrillization...Results suggest **a significant role for HSA regulating A β fibril growth in the brain interstitium** (*Stanyon et al. J Biological Chemistry, 2012*)

*HSA: human serum albumin

Albumin: a potential therapeutic agent for Alzheimer's disease

Albutein® related studies: key points

- Appears to contain no or extremely low amounts of A β
- Is able to bind an A β 1-42 peptide with the human primary sequence
- Shows a cytoprotective effect in neuronal primary cell cultures and reduces ROS generation by A β ₂₅₋₃₅
- Preferentially binds oligomers, inhibiting further A β fibrillization
- Is able to inhibit A β ₁₋₄₂ fibrillization in vitro with higher capacity than IVIG

M. Costa, AM Ortiz, JI Jorquera. Therapeutic Albumin Binding to Remove Amyloid- β . Journal of Alzheimer's Disease 30 (2012) 1-12.

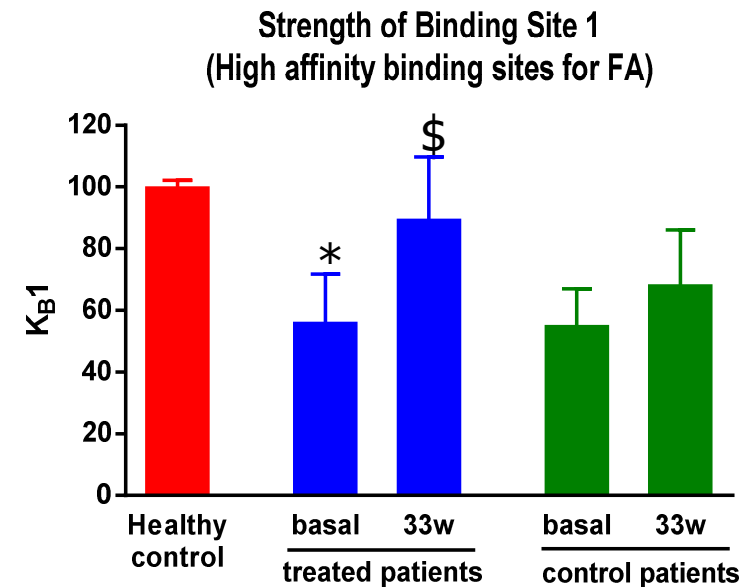
J Milojevic, M Costa, AM Ortiz, JI Jorquera, G Melacini. In vitro A β binding and inhibition of A β self-association by therapeutic albumin. Journal of Alzheimer's Disease 38 (2014) 753-765.

Albutein® : Grifols' therapeutic albumin

Albumin: a potential therapeutic agent for Alzheimer's disease

On-going studies: in depth characterization of albumin from healthy donors vs AD patients (functional and structural assays)

- Our preliminary data suggest that albumin from Alzheimer's patients might present functional and/or structural alterations:
 - **Plasma and brain levels of nitrated and glycated albumins were significantly higher in AD patients.** (*E. Ramos-Fernández et al. Posttranslational Nitro-Glycative Modifications of Albumin in Alzheimer's Disease: Implications in Cytotoxicity and Amyloid β -Peptide Aggregation. Journal of Alzheimer's Disease 40 (2014) 643-657.*)
 - Preliminary results using Electronic Paramagnetic Resonance technique, that measure albumin fatty acid binding capacity, suggest that **Albumin function is reduced in AD.** (*Dr Jalan, from UCL, UK*)



*p<0.05 compared with Healthy

\$p<0.06 compared with Pre Rx

Albumin: a potential therapeutic agent for Alzheimer's disease

IG0102

A MULTICENTER, RANDOMIZED, CONTROLLED STUDY TO EVALUATE THE EFFICACY AND SAFETY OF SHORT-TERM PLASMA EXCHANGE FOLLOWED BY LONG-TERM PLASMAPHERESIS WITH INFUSION OF HUMAN ALBUMIN COMBINED WITH INTRAVENOUS IMMUNOGLOBULIN IN PATIENTS WITH MILD-MODERATE ALZHEIMER'S DISEASE

Principal Investigator: Mercè Boada, MD

Phase IIb US / Ph III EU

Study sites: Spain and USA

Main goal: To evaluate cognition and function in mild to moderate AD

alzheimer
management
by albumin
replacement



Grifols AMBAR project: Definitions

- Therapeutic Apheresis (TAPh):
 - Removal of 2.5-3 L of plasma from a patient and replacement with the same volume of FFP and/or Albumin. Separation of plasma from blood is done by centrifugation or filtration

- Hemopheresis (HPh):
 - Removal of 650-800 mL of plasma from a patient with replacement of the Albumin or Immunoglobulin contained in the extracted plasma. Red cells are reinjected to the patient. Once completed, a volume of Albumin or IVIG containing the required grams is injected. Separation of plasma from blood is done by centrifugation

Therapeutic apheresis in neurological disorders

Acute Disseminated encephalomyelitis
Guillain-Barre Syndrome
Chronic Inflammatory demyelinating polyneuropathy
Myasthenia Gravis
Eaton-Lambert Syndrome
Multiple Sclerosis
Devic's disease
Rasmussen's encephalitis
Stiff -Person syndrome
PANDAS and Sydenham corea
Paraneoplastic syndrome
Inclusion body myositis

Removal of pathologic substances

- Immunoglobulins
- Immune complexes
- Cytokines

Other immune system changes have been reported to occur include:

- Increase in regulatory T-cells
- Decrease in B-cells
- Promotion of suppressor T-cell function
- Alteration in Th1:Th2 ratio

Taph with Albumin replacement: Why a potential AD treatment?

A β peptides are transported on lipoproteins and albumin in human plasma (1)

40% of albumin is contained in plasma and 60% is in extracellular fluids (2)

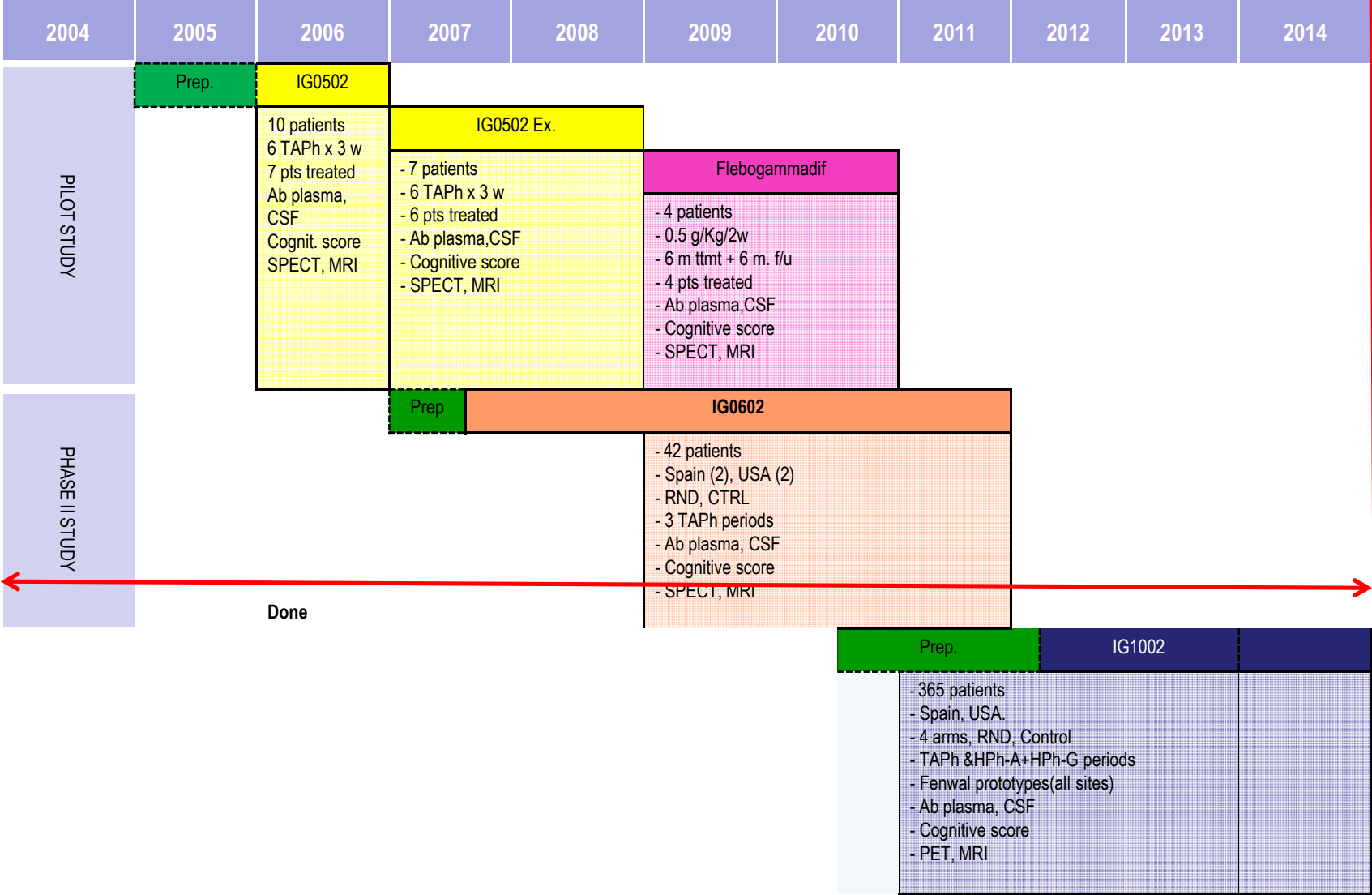
There is a glycation of albumin in normal aging, which attenuates its binding capacity. Consequently, the toxic A β protein would remain longer in CSF and plasma (3)

Removal of circulating A β species can alter the CSF/plasma equilibrium, possibly shifting the balance of toxic amyloid proteins from the CSF to plasma can modify the pathological effects of amyloid in the brain (4)

Plasma exchange would allow the removal of “old” albumin with the introduction of “new” albumin with better binding capability

Plasma exchange is a possible treatment for AD, since it could provide a “mechanical” removal of toxic amyloid proteins

Grifols AMBAR project overview



AMBAR: Pilot studies

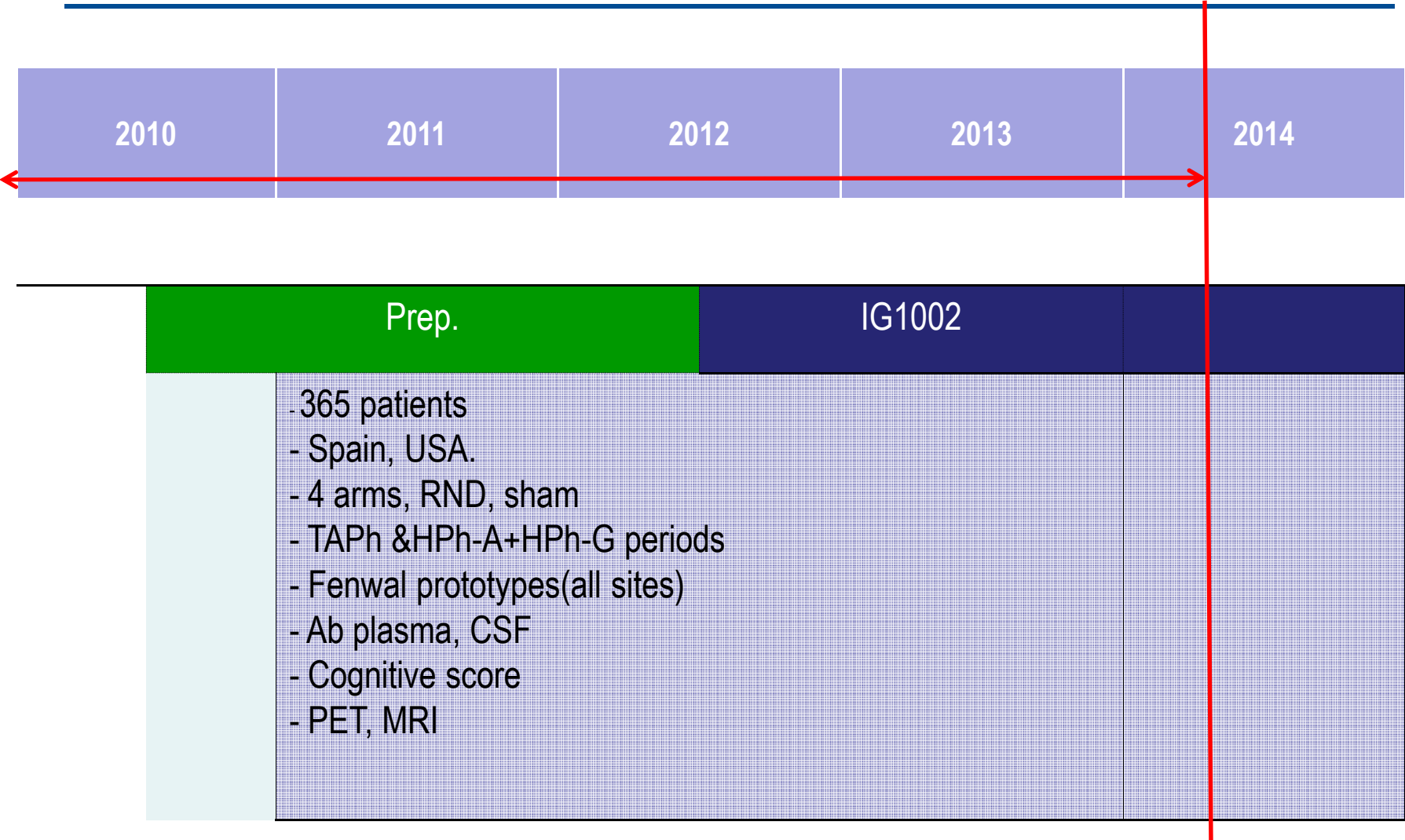
Plasma exchange therapy with Human Albumin® Grifols is feasible in patients with AD

Adverse events were **mild** and brief

ADAS-cog and MMSE scores remained relatively stable during the course of the initial and extension studies

Preliminary results suggest that a large trial using PE was warranted in AD patients

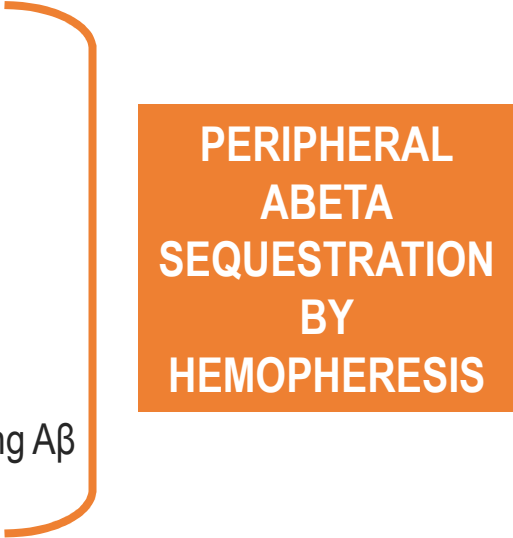
Grifols AMBAR project: current trial



Dual mechanism of action

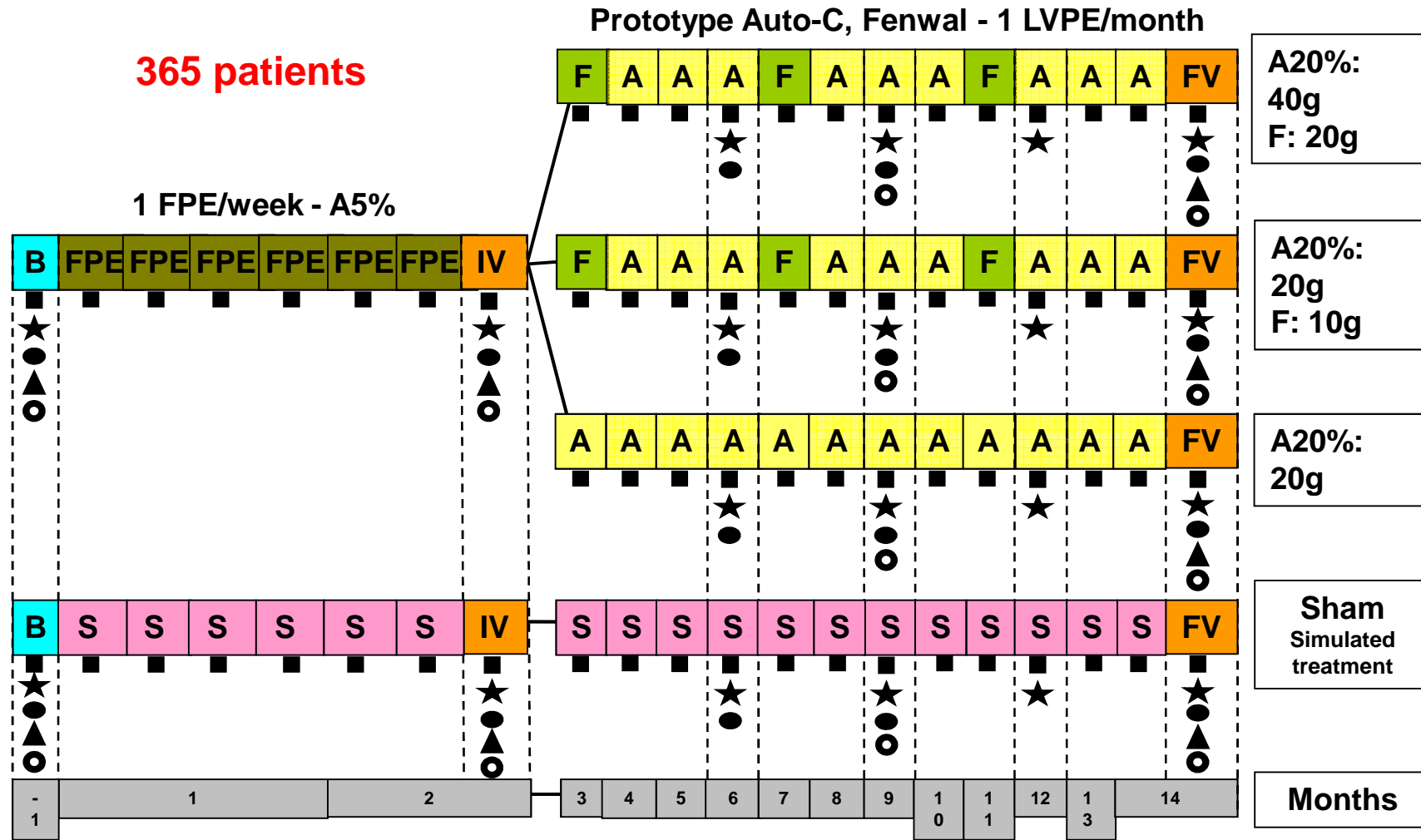
- Plasmapheresis:
 - Remove plasma albumin with bound A β
 - Remove other proteins which also bound A β (IG)

- Replacement with Albutein[®]:
 - Restore plasma albumin capacity to continue binding A β



**PERIPHERAL
ABETA
SEQUESTRATION
BY
HEMOPHERESIS**

Grifols AMBAR project: current trial design



FPE: Full Plasma Exchange

F: Flebogamma®DIF 5% (Fixed dose)

■ AD Biomarkers

▲ Lumbar Puncture

LVPE: Low Volume Plasma Exchange

A: Albutein® 5% - 20% (Weight-dependent dose)

★ Neuropsychological Tests

● MRI

○ FDG-PET

Grifols AMBAR project overview



Status and milestones

- Participating sites: 43
 - 21 Spain
 - 22 USA

- Active sites: 20

- Patients recruited: 50

- Apheresis providers:
 - Spain: BST (Bank of Blood and Tissues), Site-specific
 - USA: American Red Cross, Fresenius Medical Care, Site-specific

- Interim analysis: mid 2015 (approx. 180 patients)

- Preliminary results: end 2016

Plasma contains factors against cellular senescence

THE WALL STREET JOURNAL. May 4, 2014

U.S. NEWS

Transfused Blood Rejuvenates Old Mice

Research May Point to Ways to Reverse Some Effects of Human Aging

In one study, researchers at Stanford University and the University of California, San Francisco found that blood transfusions from young mice reversed cognitive effects of aging, improving the old mice's memory and learning ability. The report was published Sunday in the journal Nature Medicine.

Two other reports appearing in Science from researchers at Harvard University found that exposing old mice to a protein present at high levels in the blood of young mice and people improved both brain and exercise capability. An earlier report by some of the same researchers linked injections of the protein to reversal of the effects of aging on the heart.

BBC

NEWS HEALTH 5 May 2014

New blood 'recharges old brain', mouse study suggests

In the study, published in **Nature Medicine**, mice aged 18 months were given injections of the fluid part of blood (plasma) taken from mice aged three months.

The injected mice performed better on memory tests than mice of the same age that had not been given blood plasma.

May 4, 2014. Interview with Stanford Investigators on application to AD

This plasma-transfer approach seems simple, but research has focused on monoclonal antibodies and other potential avenues for treatment. Where does your approach fit in on the innovation spectrum?

“This is so simple. You could be taking plasma from a young animal to an old animal, a young person to an old person 20 years ago, maybe 50 years ago. There’s no level of sophistication to it”

But what if it works?

“It would be amazing, and yet it’s a completely different approach to what people have tried so far. It does not take the approach of, “What’s the direct molecular pathway?” but looks at the physiological point of view and the aging perspective. If you can delay aging by a few years, you take care of most of the patients, because they will die of another cause”

But you still don’t know what makes this work in mice and why it might work in humans

“Ultimately, we would like to find what factors are responsible or to know which fraction of the plasma is responsible. I have the inkling that there will be good and bad factors in young plasma but that the good ones outweigh the bad ones. So, if we fractionate them, some fractions may be much more potent than the whole plasma”

Plasma exchange to prevent age-related diseases?

- **Giving old animals blood or PLASMA from young ones reverses some signs of aging**
 - **The ageing systemic milieu negatively regulates neurogenesis and cognitive function.** (*Villeda SA et al. Nature 2011; 477:90-94*)
 - **Young blood reverses age-related impairments in cognitive function and synaptic plasticity in mice** (*Villeda SA et al. Nature Medicine 2014; doi:10.1038/nm.3569*)
- The plasma protein growth differentiation factor 11 (GDF11), has been identified as partly responsible for the antiaging effect on specific tissues such as the heart, the muscle and the brain
 - **Vascular and neurogenic rejuvenation of the aging mouse brain by young systemic factors** (*Katsimpardi L et al., Scienceexpress 2014; 10.1126/science.1251141*)
 - **Restoring systemic GDF11 levels reverses age-related dysfunction in mouse skeletal muscle** (*Sinha M et al., Scienceexpress 2014; 10.1126/science.1251152*)
- Evidence that cellular senescence can be modulated by systemic factors that change with age **Plasma exchange is a medical procedure which effectively can remove aging plasma and replace it with fluids that will provide an environment conducive to cell rejuvenation. The choice of replacement fluid will be very important**
 - **Intermittent heterochronic plasma exchange as a modality for delaying cellular senescence-a hypothesis.** (*Kiprov DD et al. J Clinical Apheresis 2013; 28:387-389*)

Summary

- Albumin is a therapeutic agent, not just a plasma volume expander
- There is an increasing number of potential new indications for Albumin
- Grifols is pioneering investigations of Hemopheresis and plasma exchange with Albumin in liver disease, Alzheimer's and other fields.
- Evidence that supports the above is growing dramatically
- New formulations of Albumin are being developed
- Recent investigations from leading institutions in the US suggest that plasma contains proteins that can prevent cellular senescence and therefore age-related disorders
- The use of Hemopheresis and plasma exchange not only in AD but in other age-related disorders is biologically plausible
- Some fractions of plasma may result more potent than others in inhibiting cellular senescence

Investors' & Analysts' Meeting Barcelona 2014

Sales & Marketing

Investors' & Analysts' Meeting Barcelona 2014

Global Commercial

- Ramon Riera -

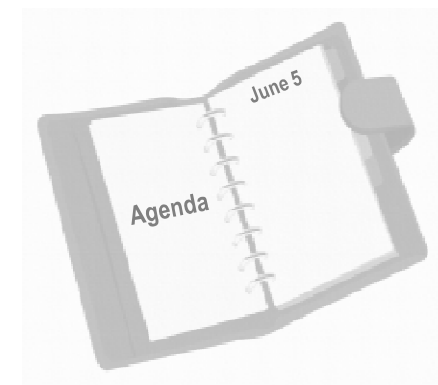
GRIFOLS
pioneering spirit

Global Commercial strategy

To deliver a sustainable sales growth

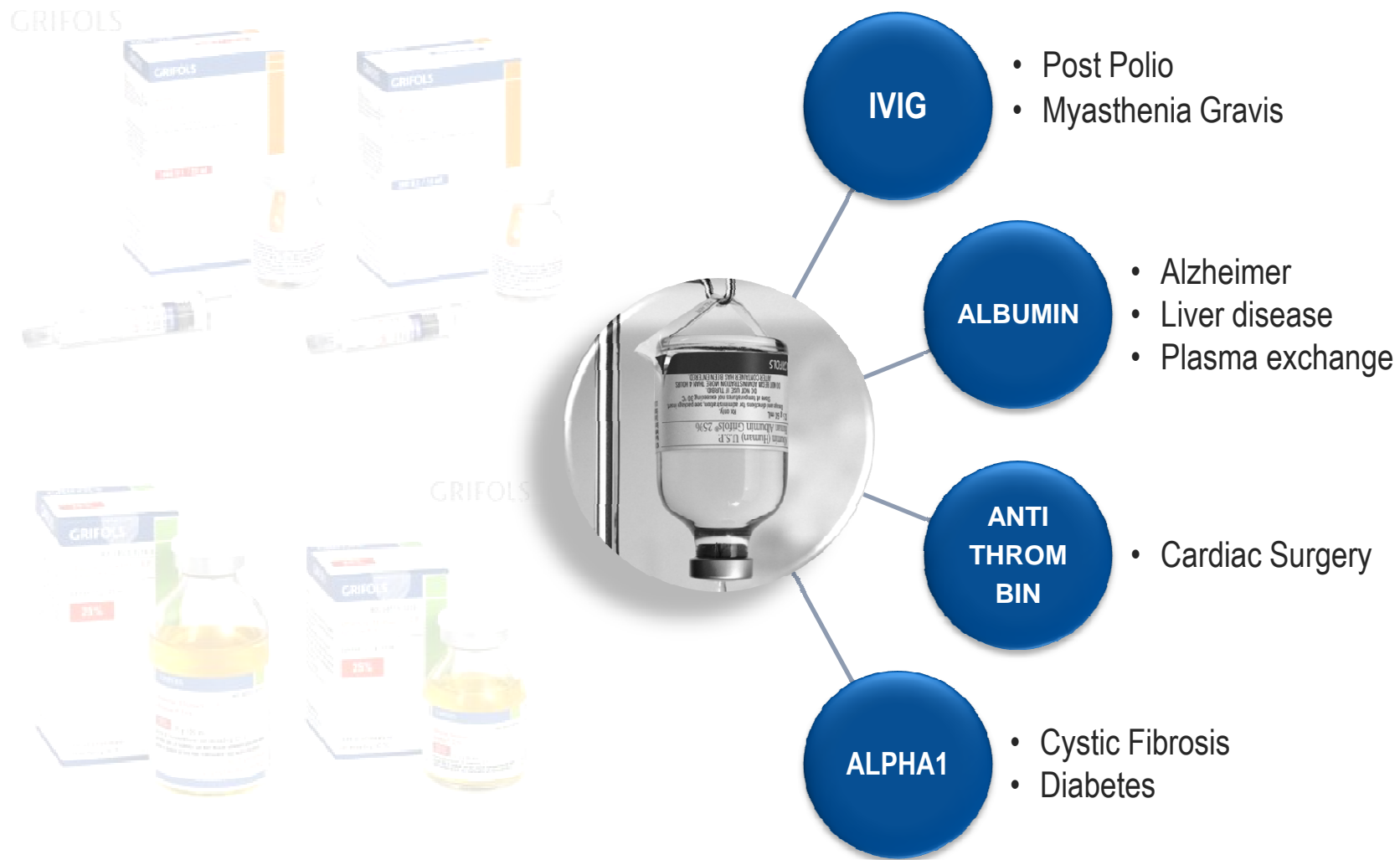
1.- Expanding the Bioscience Market

- 2.- Balanced plasma proteins growth
- 3.- Achieve and maintain leadership positions in key products
- 4.- Geographical expansion
- 5.- Transformational acquisitions in the Diagnostic field
- 6.- Adding complementary business opportunities



1.- Expanding the Bioscience market

- Development of new indications for the products already in the market



Expanding the Bioscience market

- Increasing diagnosis for current indications
 - Developing new tools for the identification of Alpha1 deficient patients
 - Access of Haemophiliacs to treatment with coagulation factors
 - Supporting campaigns for the diagnosis of primary immunodeficiency
 - Effective diagnosis and treatment of neurological disorders like CIDP

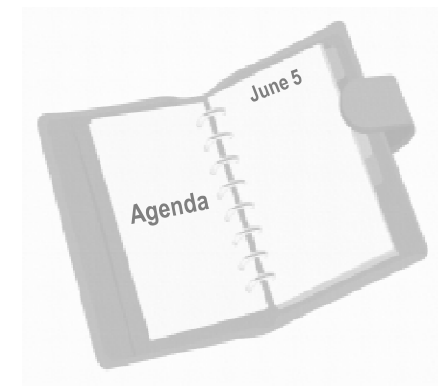
- Developing new proteins that will help to increase the income per liter of Plasma
 - Fibrin Sealant
 - Thrombin
 - Fibrinogen
 - Plasmin



Global commercial strategy

To deliver a sustainable sales growth

- 1.- Expanding the Bioscience Market
- 2.- Balanced plasma proteins growth**
- 3.- Achieve and maintain leadership positions in key products
- 4.- Geographical expansion
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2.- Balanced plasma proteins growth

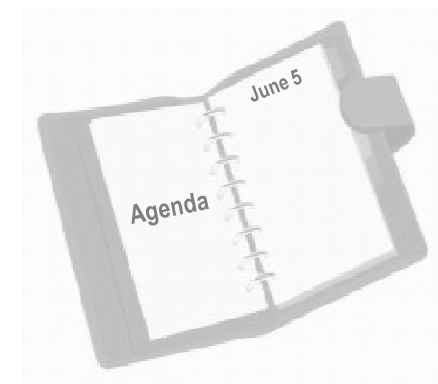


- Build balanced manufacturing capacity for the different proteins contributing to the business
- Define plasma fractionation throughput based on the ability to sell several proteins from the liter of plasma
- Focus on developing demand for proteins other than IVIG and Albumin
- Commercial strategy based on product differentiation and geographical expansion

Global commercial strategy

To deliver a sustainable sales growth

- 1.- Expanding the Bioscience Market
- 2.- Balanced plasma proteins growth
- 3.- Achieve and maintain leadership positions in key products**
- 4.- Geographical expansion
- 5.- Transformational acquisitions in the Diagnostic field
- 6.- Adding complementary business opportunities



3.- Achieve and maintain **leadership** position in key products



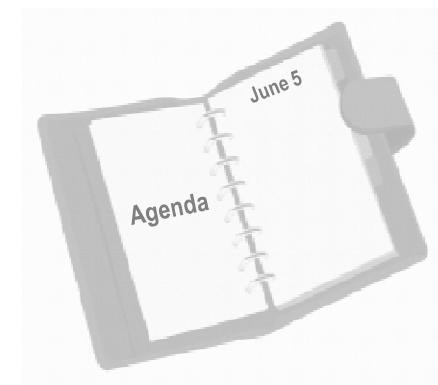
- Worldwide **leaders** in Immunoglobulins with best in class clinical experience and **leading** the development of new indications
- **Leading** the industry in finding new indications for Albumin
- More than 25 years of **leadership** in the development of Alpha1 and the treatment of its deficiency
- **Pioneers** in the development of new proteins like Plasmin
- Contributing to overcome the difficulties of inhibitor treatment in Haemophilia



Global commercial strategy

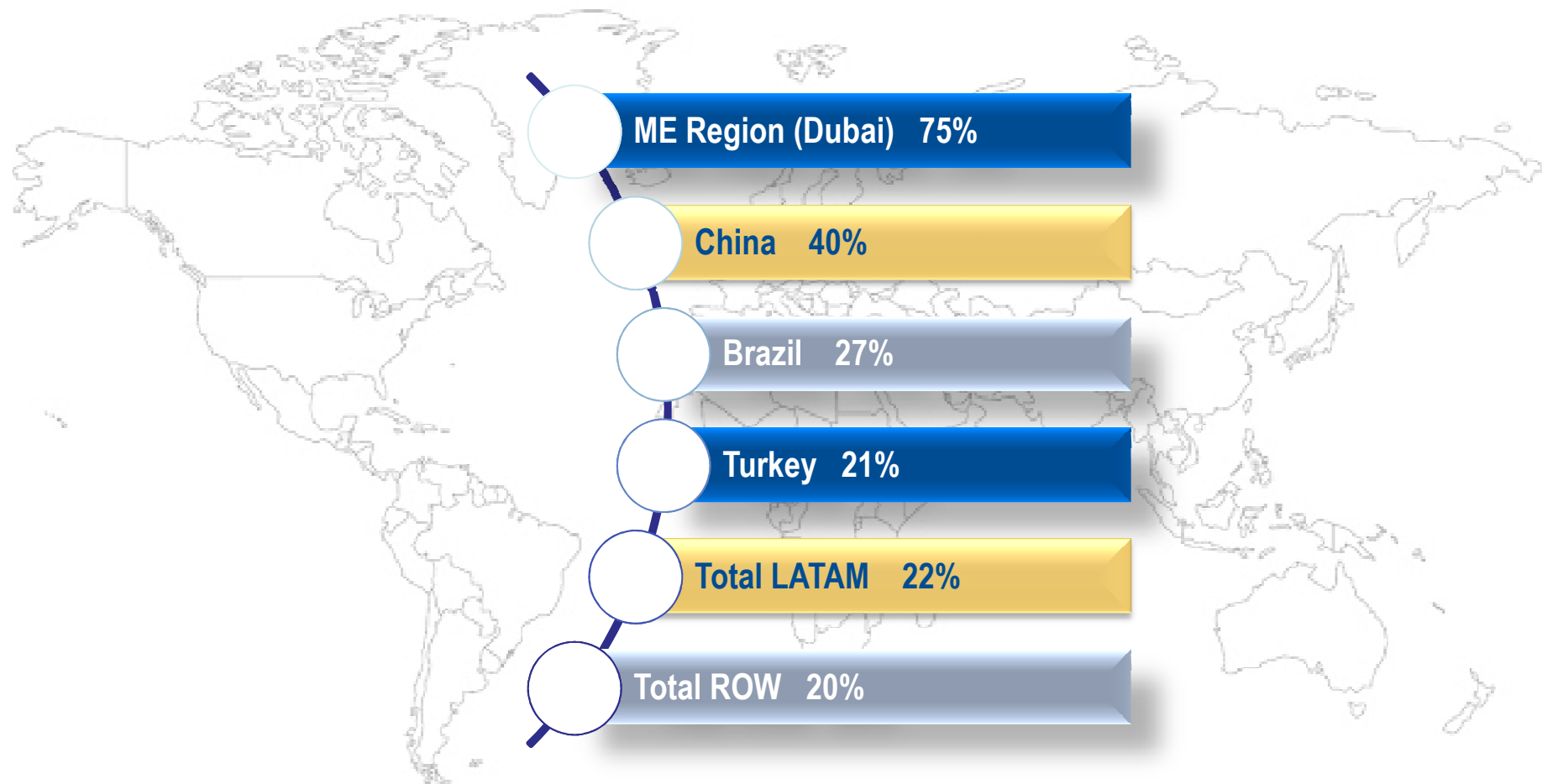
To deliver a sustainable sales growth

- 1.- Expanding the Bioscience Market
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- 4.- Geographical expansion**
- 5.- Transformational acquisitions in the Diagnostic field
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4.- Geographical expansion

Emerging markets have shown an outstanding performance during 2013



Geographical expansion

CHINA and SOUTHEAST ASIA

- New legal entity in China already established in 2013
- Consolidation of the Diagnostic activity including the growing NAT business
- APAC Diagnostic “Hub” in Hong Kong
- Establishment of new subsidiaries to support and further increase the recently acquired transfusion business in the region. Indonesia and Taiwan are potential new country targets



Geographical expansion

INDIA

- Opening of New Grifols legal entity to:
 - Incorporate NAT current business and commercial team
 - Evaluate opportunities for Bioscience products and other Grifols Diagnostics products



BRAZIL

- Continue strengthening Grifols' presence in the region:
 - Manufacturing facilities. First project, the construction of a blood bag manufacturing plant already on going
 - Expanding Grifols commercial network for Bioscience and for Diagnostic products
 - Consolidation of a Hospital Logistics unit to support the Automation in the Brazilian hospitals' network



Geographical expansion

LATAM

- Besides Brazil there are numerous market opportunities in the regions
- Grifols historical presence and strong cultural links, places us in a unique position to capture opportunities in this emerging region of the world
- Our subsidiary in Colombia will play a relevant role in the development of business in surrounding countries



Geographical expansion

TURKEY and MIDDLE EAST

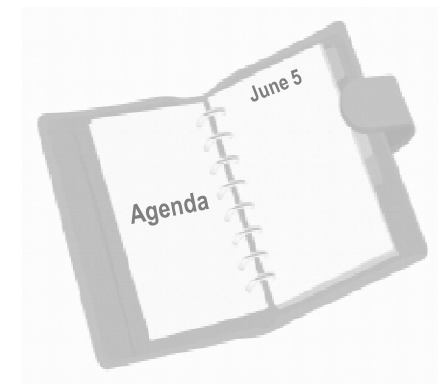
- The Middle East is a region of strategic focus for Grifols
 - Dubai is the first direct presence of the company, established in April 2013
 - Primary focus will be Turkey, where Grifols is developing a new commercial model involving a closer presence and stronger support for our actual distributor's network



Global commercial strategy

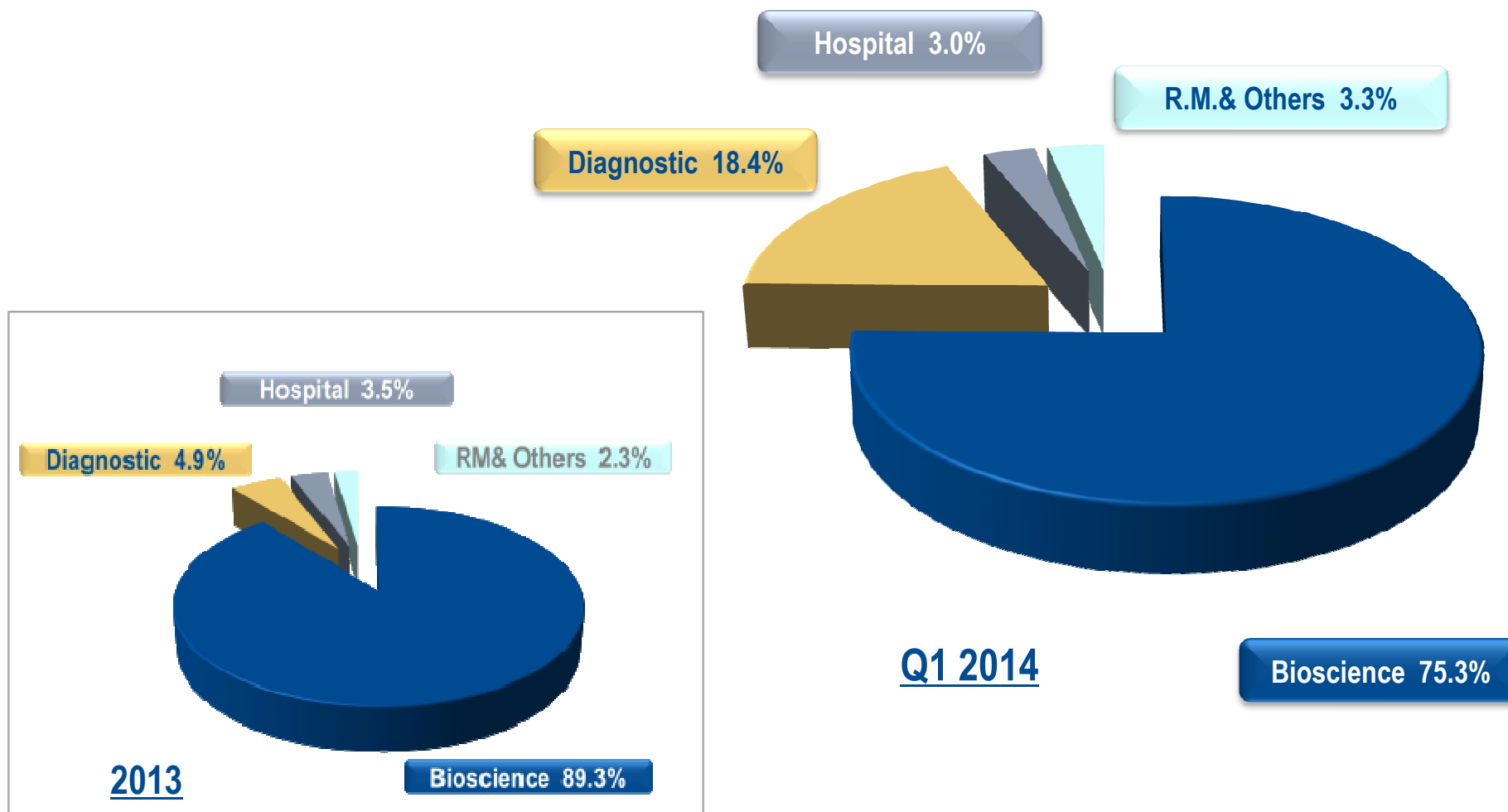
To deliver a sustainable sales growth

- 1.- Expanding the Bioscience Market
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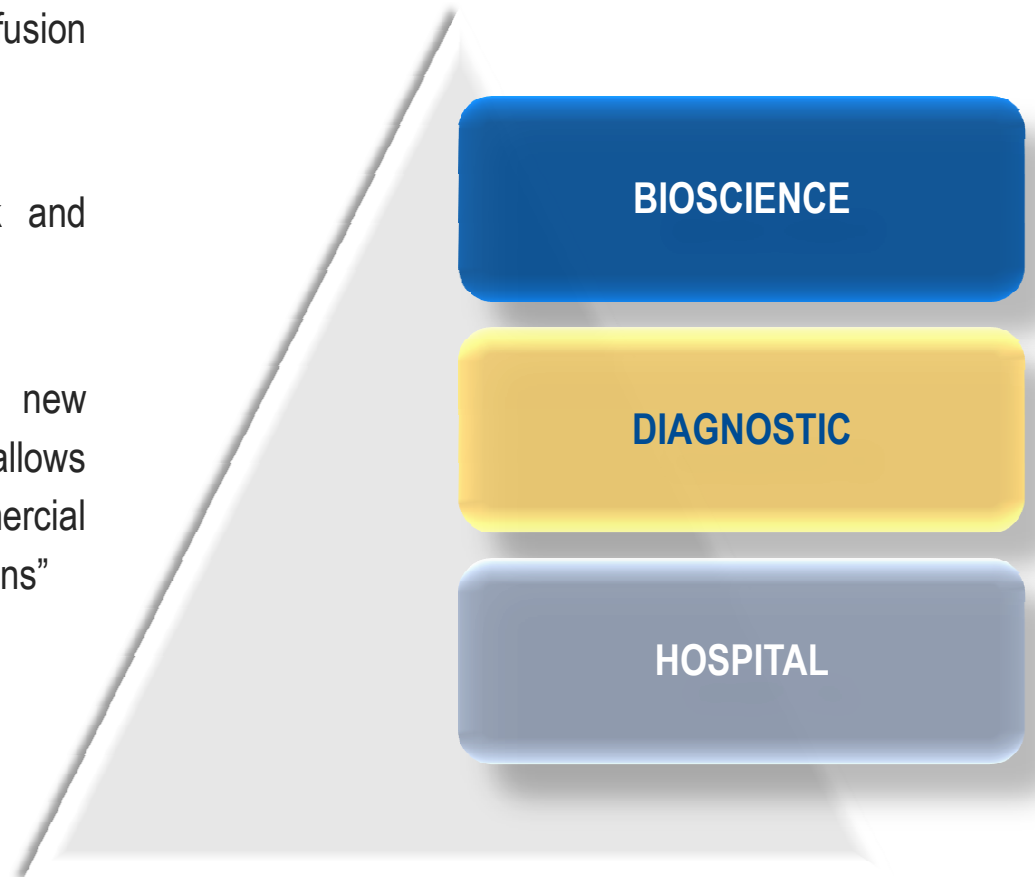
5.- Transformational acquisitions in the Diagnostic field

The acquisition of the new diagnostics' division establishes the foundation for a growing business



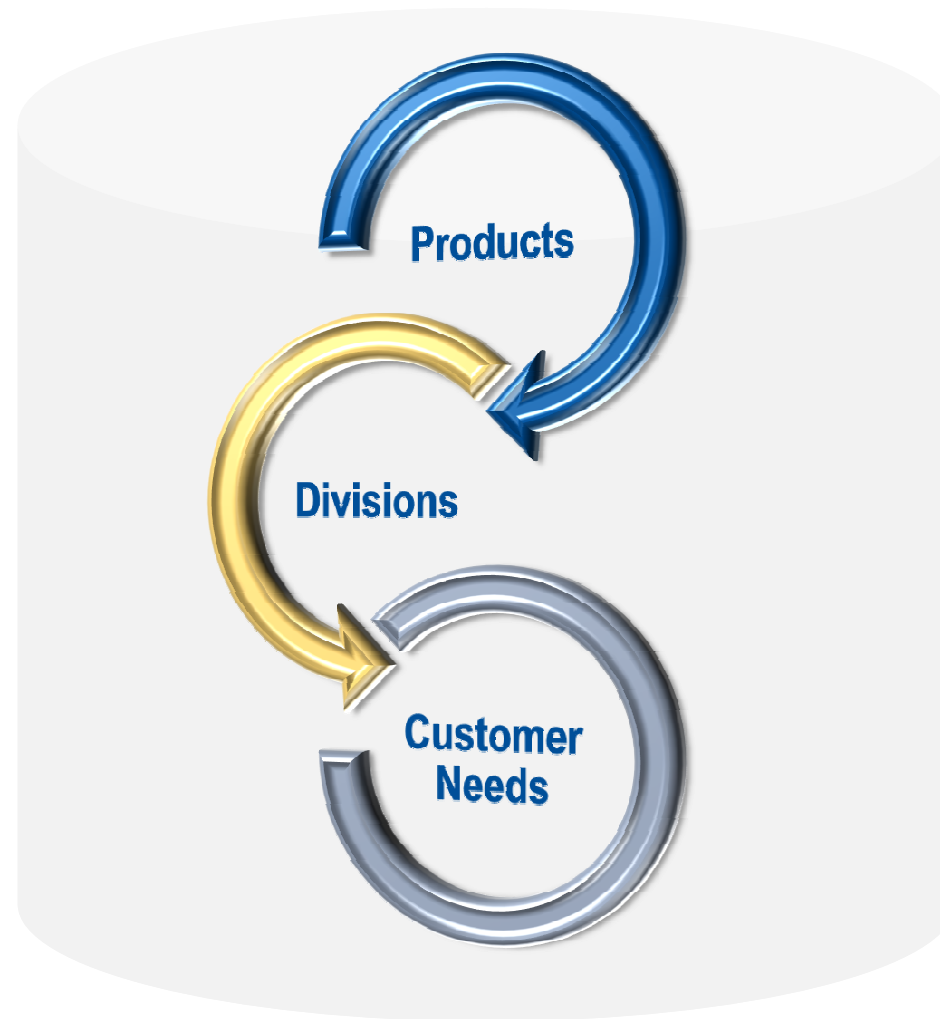
Grifols is globalizing its Business Divisions

- This new acquisition provides a platform to develop a leading position in transfusion safety
- The Integration process is on track and developing smoothly
- The geographical reach of our new Diagnostic business is now global and allows the company to restructure its commercial organization with a focus on the “Divisions”



Grifols is globalizing its Business Divisions

As a result we will adjust our commercial organization with a stronger focus on:



Grifols is globalizing its Business Divisions

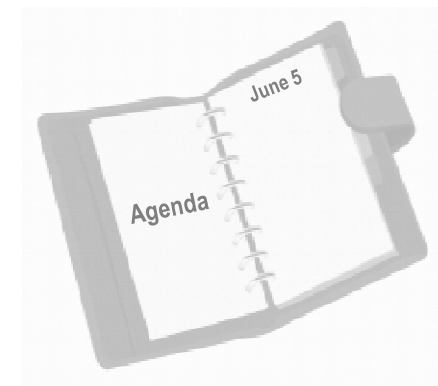
- We are establishing a global Logistics Center, which includes central labelling, packaging, and quality release for our Bioscience products, in our newly created subsidiary in Ireland: GWWO
- We will continue supporting our geographical expansion with a strong network of commercial subsidiaries around the world that will allow us to be “closer to Customer”



Global commercial strategy

To deliver a sustainable sales growth

- 1.- Expanding the Bioscience Market
- 2.- Balanced plasma proteins growth
- 3.- Achieve and maintain leadership positions in key products
- 4.- Geographical expansion
- 5.- Transformational acquisitions in the Diagnostic field
- 6.- Adding complementary business opportunities**



6.- Adding complementary business opportunities

To further strengthen business in the Grifols areas of expertise

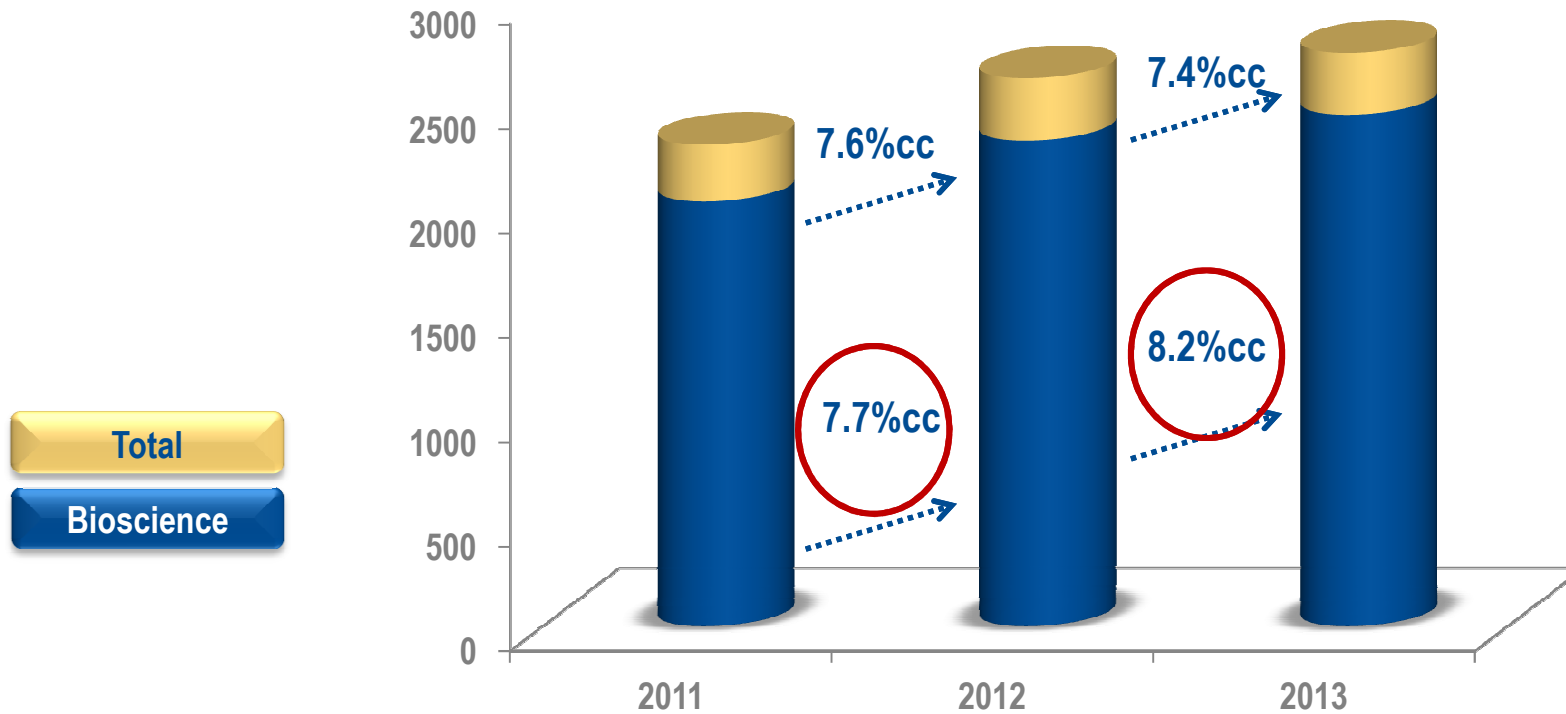
- Pulmaquin®, a product to improve the Grifols' position in the Pulmonary field. Phase III clinical trial for Bronchiectasis, last April "First patient in"
- Continued efforts to expand Grifols's position in the hospital pharmacy and in the automation of IV Drugs preparation and delivery



Track record of growth

- Since the acquisition of Talecris and after the integration process Grifols has completed two consecutive years of strong and balanced sales growth
- This will be enhanced starting in 2014 by the new scope of our Diagnostic division and by new projects going forward

MM €



Investors' & Analysts' Meeting Barcelona 2014

Sales & Marketing – Bioscience & Hospital

- Lafmin Morgan -

Commercial priorities



Commercial strategies

Support Market Expansion

- Increase Alpha 1 Diagnosis and treatment
- ATIII plasma utilization by increasing diagnosis, treatment
- Increase awareness of Albumin indications

Differentiate Products

- 2014 Launch IVIG (40g)
- 2014 Launch FVIII (2000iu vial)
- Expand Prolastin® Direct Model
- Development of albumin bag packaging

Geographic Expansion

- Expand Alpha 1 products in new markets
- Enhance flexibility to participate in large FVIII tenders
- Increase presence in emerging markets (Turkey, Russia, Brazil, Poland)

Market support efforts

During 2013 Grifols successfully executed the strategy of market and geographic expansion

IVIG

- Maintained leadership as top selling IVIG company in N.A. market
- Change from Flebogamma® to DIF in major markets has been done satisfactorily
- Approval of Plangamma® in Spain, the new fractionation agreement IVIG for the Spanish market

Alpha 1

- Launched enhanced Prolastin® Direct program in Canada
- Created dedicated sales structure in Brazil, Argentina, Spain and Portugal
- Testing in U.S. has grown substantially

Market support efforts

During 2013 Grifols successfully executed the strategy of market and geographic expansion

Albumin

- Achieved significant growth in the U.S., China and Emerging Markets
- Studies to support Albumin ongoing
- HES restrictions impact varies by market

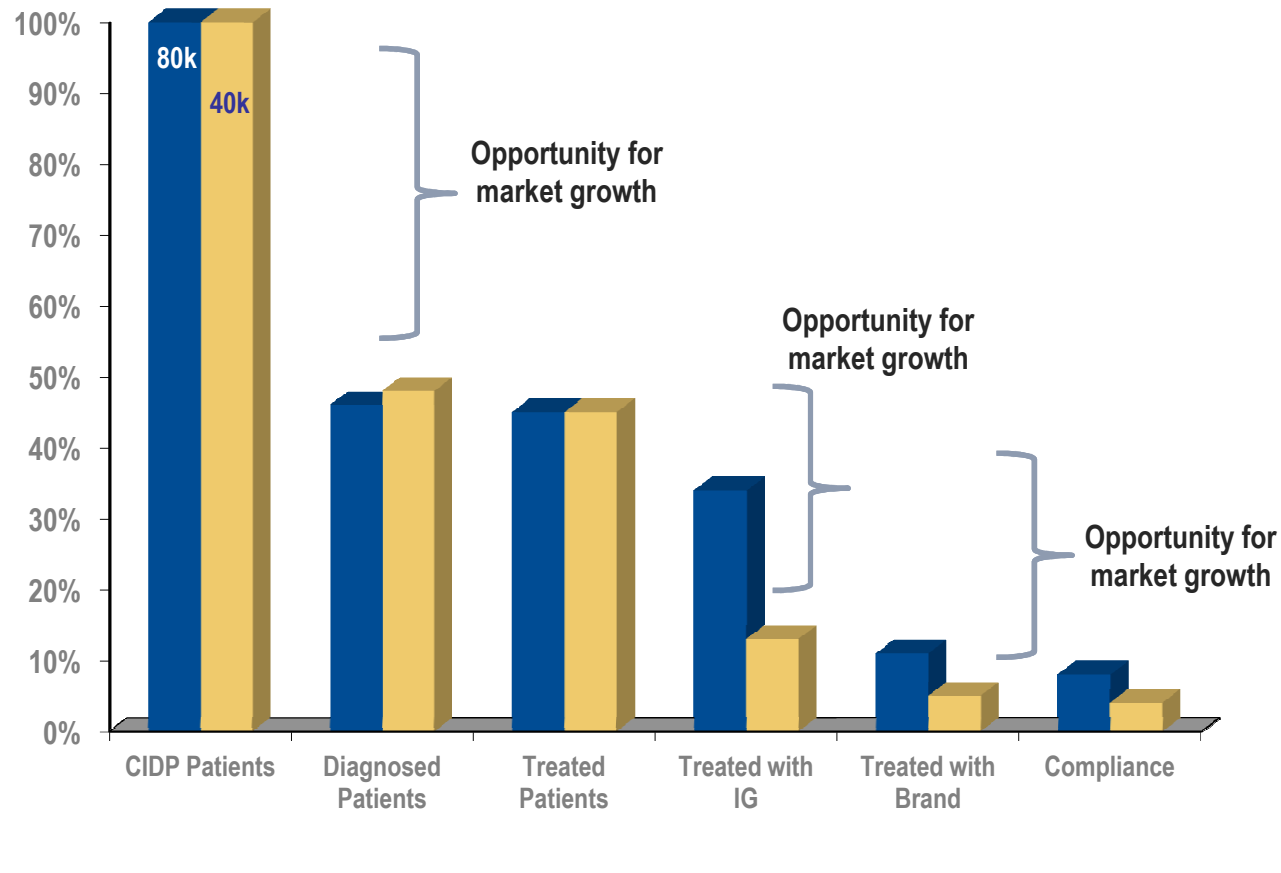
pdFVIII

- Successfully grew sales of pdFVIII in 2013
- Launched Patient registry in U.S. (PRISM)

IG CIDP opportunity

Better diagnosis and preferential treatment with IG represent growth opportunities

Improving accurate diagnosis of CIDP and treatment with Gamunex[®] are potential avenues for Grifols market growth. As well, there is an opportunity to improve treatment with IG, especially outside of the US



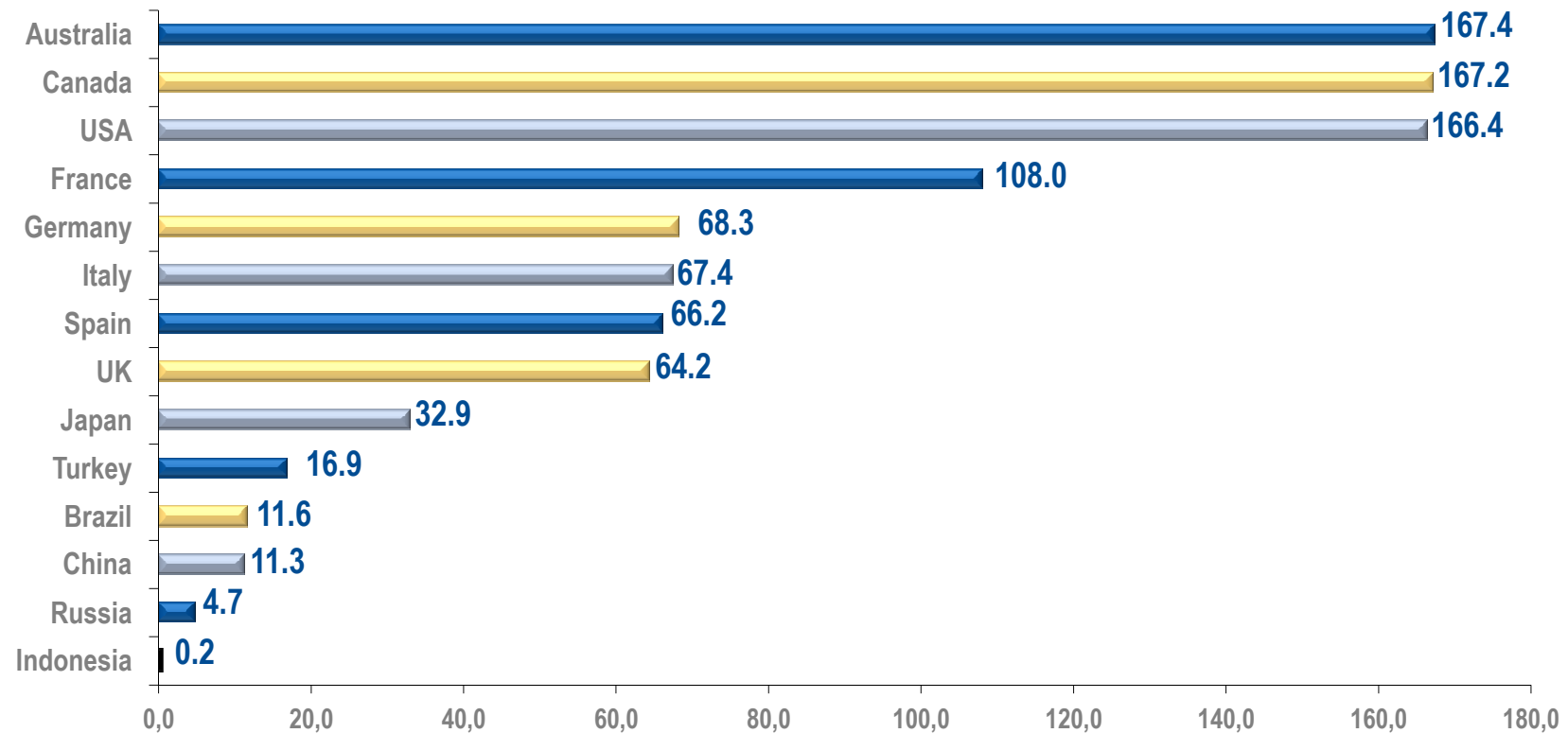
■ US
■ GER + UK + CAN

Calculations made for year 2012. Sources in backup

Market Analysis – Global IG Market Overview

Emerging markets present opportunity for global IVIG growth

Global IG consumption per capita in selected countries – 2012
(Grams per thousand inhabitants)



Grifols IVIG has the necessary geographic presence

Country	Gamunex®	Flebo Dif. 5%	Flebo Dif. 10%
Canada	■	■	■
US	■	■	■
Argentina	■	■	■
Brazil	■	■	■
Chile	■	■	■
Mexico	■	■	■
Colombia	■	■	■
Others LATAM	■	■	■
Spain	■	■	■
Germany	■	■	■
UK	■	■	■
Italy	■	■	■
France	■	■	■
Poland	■	■	■
Sweden	■	■	■
Others Europe	■	■	■
Middle East & Africa	■	■	■
Singapore	■	■	■
Thailand	■	■	■
Malaysia	■	■	■
Others Southeast Asia	■	■	■
Australia	■	■	■

- Grifols' four IVIGs are sold in more than 40 countries world-wide
- Gamunex® entered the UK in 2012
- Transition from Flebogamma® to Flebogamma® DIF has almost completed
- Registration for DIF 10% is independent of DIF 5% registration

Albumin : Two new major opportunities identified

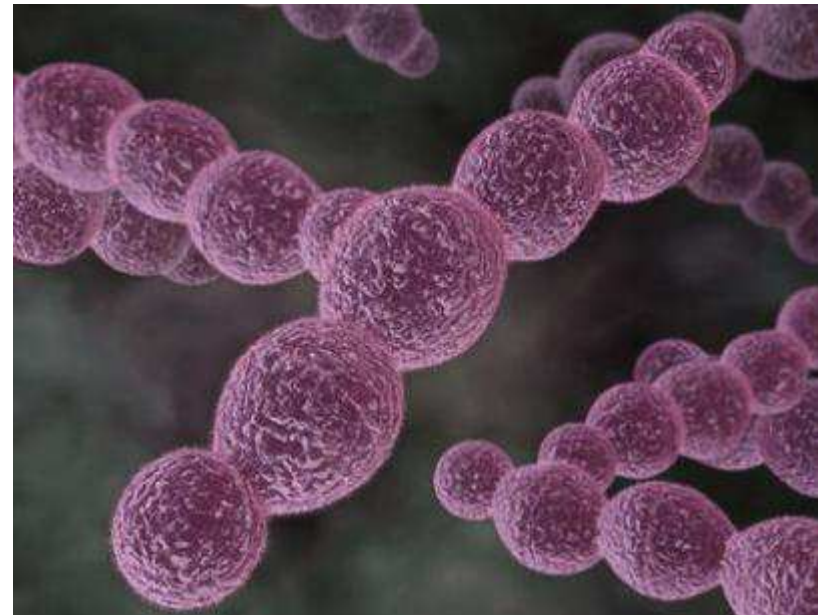


Indication / use	Target	Global targeted opportunity (M €) ¹
Sepsis	Sepsis, severe sepsis and septic shock	202
Cardiac Surgery	Patients undergoing Cardio Pulmonary Bypass	68

1. Total opportunity for accessible market (calculated considering US, China, Italy and Spain representing 58% of accessible market estimated in 498,2T). Incremental opportunity considering albumin current use and specific identified growth opportunity

Sepsis

- 15M patients globally suffer sepsis, severe sepsis or septic shock annually¹
- Hydroxyethyl-starch solutions (HES) should no longer be used in patients with sepsis in Europe and USA due to increased risk of death and kidney injury^{2,3}
- The global opportunity represents ~ 200M €



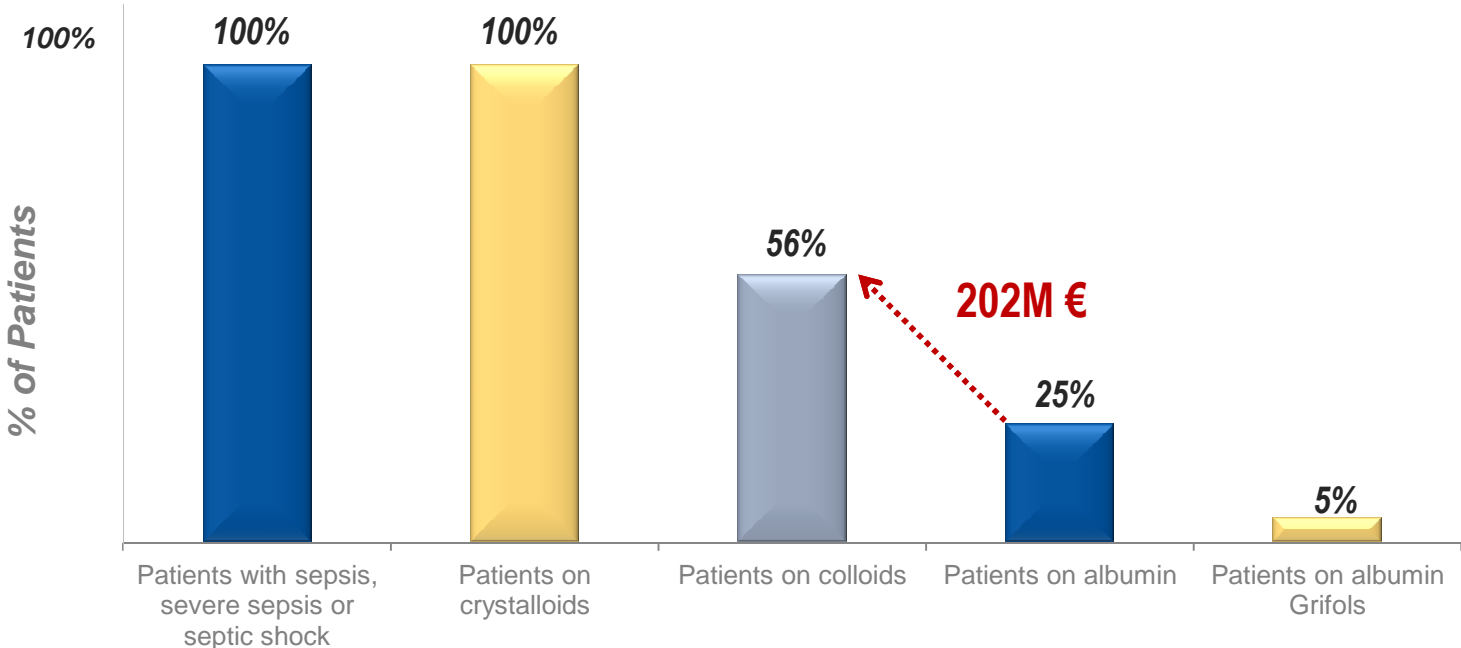
(1) *Jawad I et al. Assessing available information on the burden of sepsis: global estimates of incidence, prevalence and mortality. 2012;2(1):010404. doi: 10.7189/jogh.02.010404.*

(2) http://www.ema.europa.eu/ema/index.jsp?curl=pages/medicines/human/referrals/Hydroxyethyl_starch-containing_solutions/human_referral_prac_000012.jsp&mid=WC0b01ac05805c516f

(3) <http://www.fda.gov/biologicsbloodvaccines/safetyavailability/ucm358271.htm>

Sepsis, global

The identified growth driver is to position Albumin as the colloid of choice

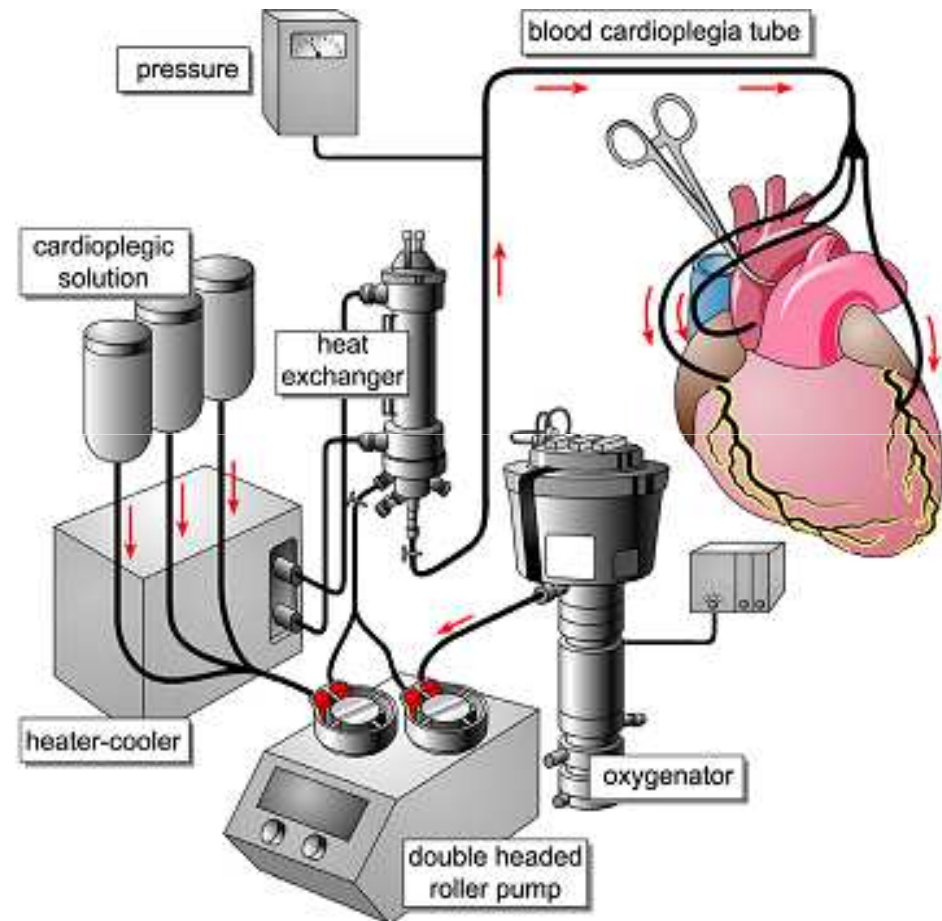


Data sources:

- Market research done in US, Spain and Italy in Q4 2013 (E&Y)
- Survey conducted during the 7th CSCCM congress, China, 2013 (Business Intelligence)
- Demographics and incidence calculations are based on bibliographic research. References available in the attached excel file

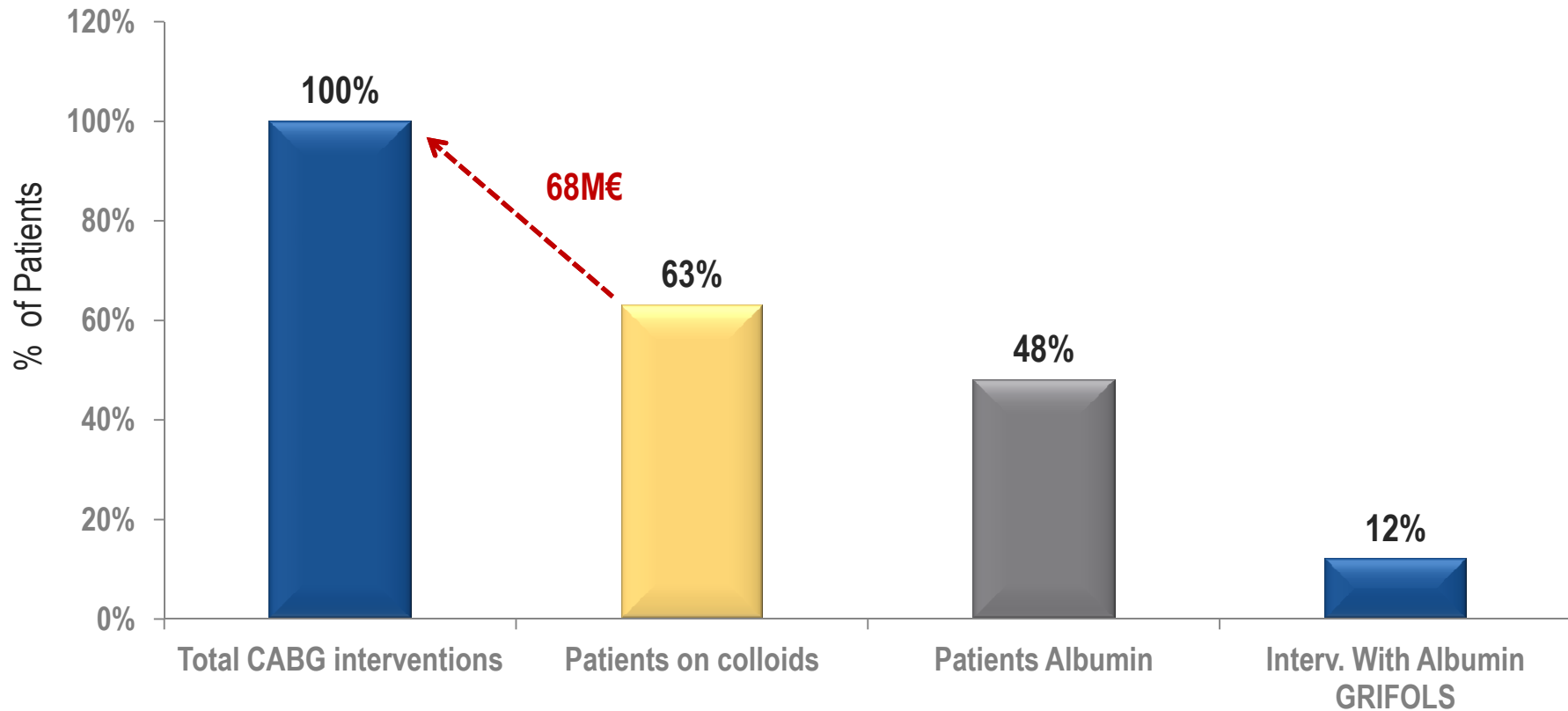
CPB: Cardio Pulmonary Bypass

- 700,000 patients undergo cardiac surgery with CPB annually in US, China, Spain and Italy
- Supporting scientific evidence of albumin benefits exists
- The global opportunity represents ~70M €



CPB: Cardio Pulmonary Bypass

The identified growth driver is to increase the number of interventions using colloids (albumin)

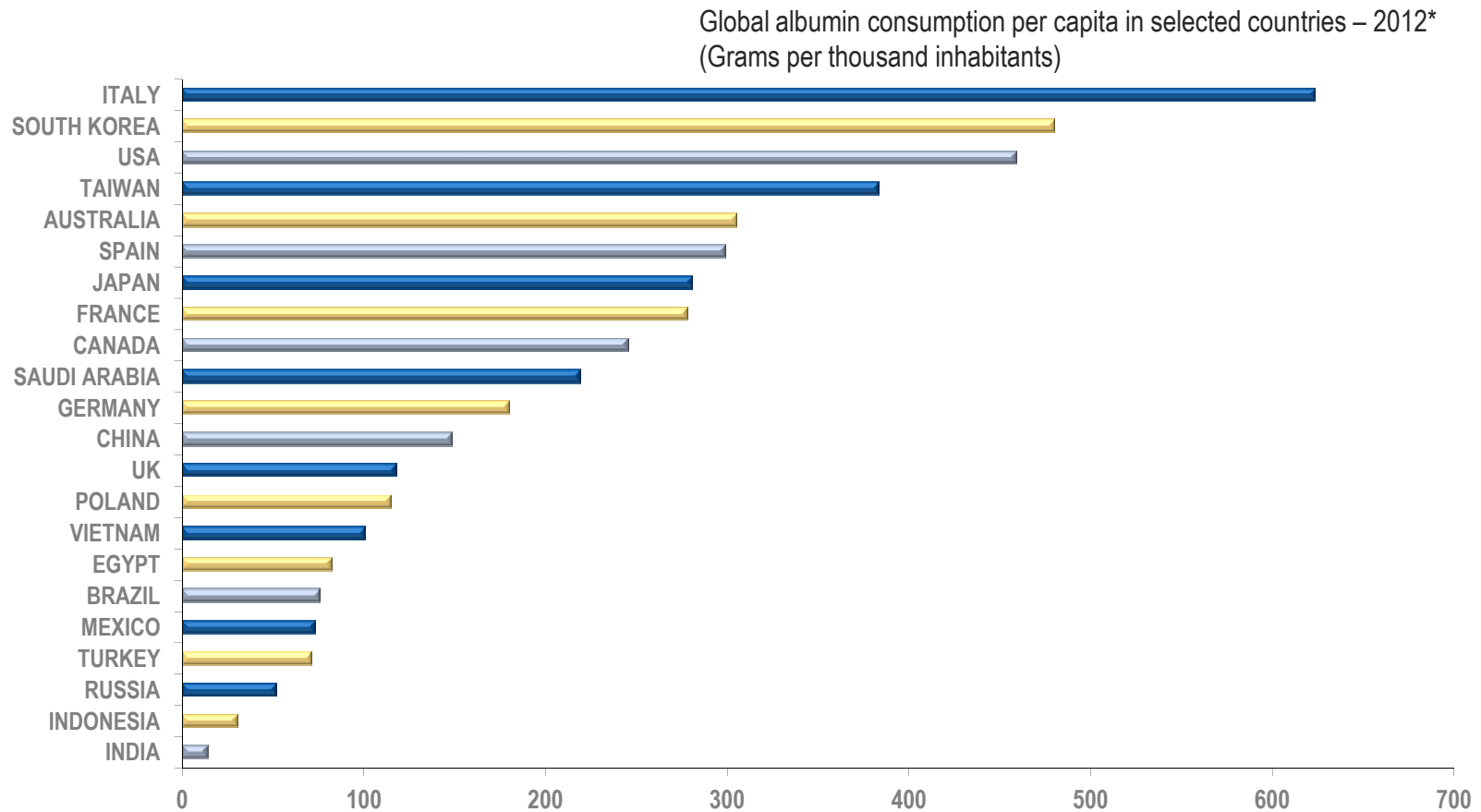


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Market analysis – Global Albumin market overview

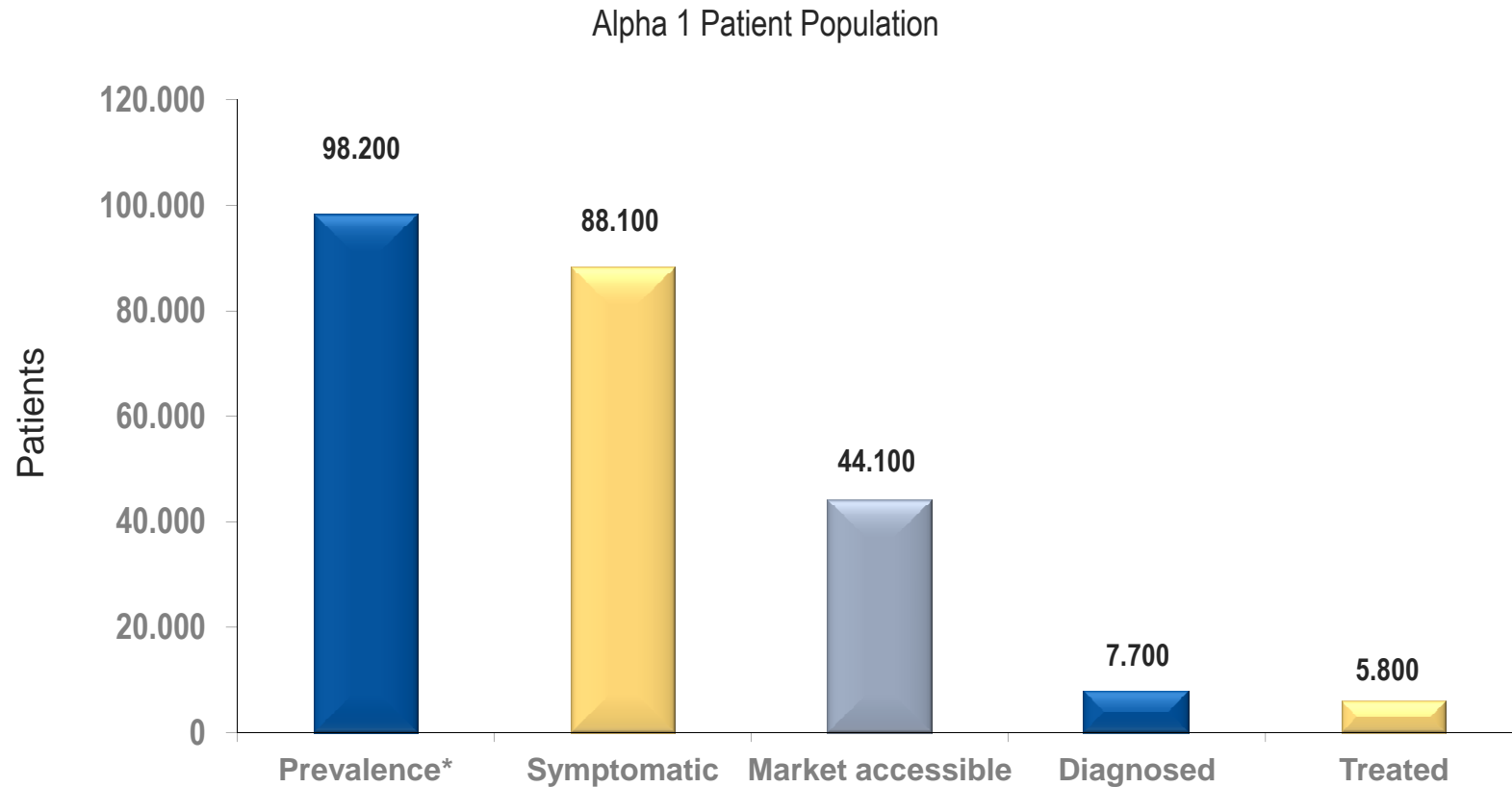
Both synthetic colloids strong consumers and emerging markets present an opportunity for global albumin demand growth



Source: The Marketing Research Bureau, Inc. (data corresponding to 2008 -2012)

Alpha 1 continues to represent significant opportunity

The market potential for alpha-1 in the US is \$3.3B assuming a peak diagnosis rate of 50%. The potential for Prolastin[®]-C is \$1.8B at current market share

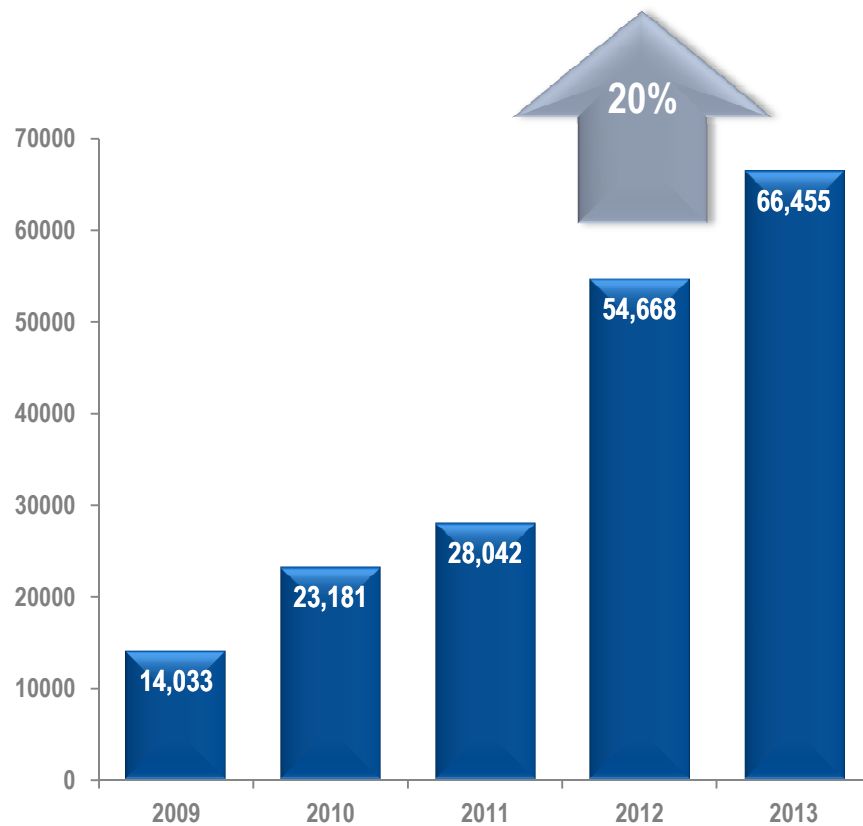


Source: Clinical literature; Physician ATU, Jul 2013, MRB data
Includes ZZ phenotype only.

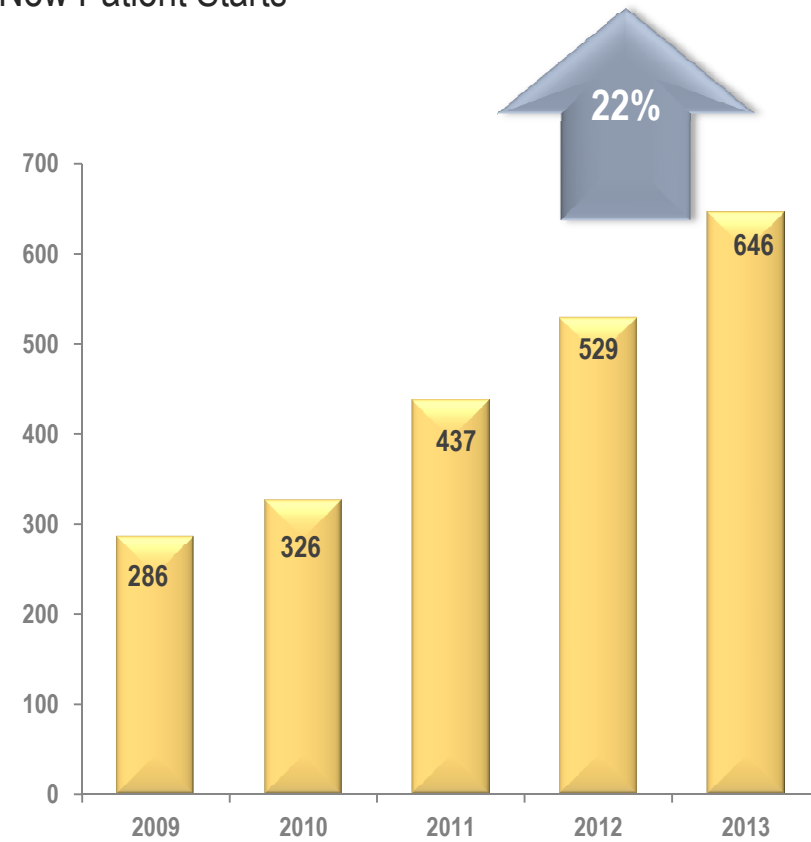
Test kit returns and new patient starts

We experienced a 20% increase in total test kit returns & 22% Increase in new patient starts

Test Kit Returns



New Patient Starts



Source: University of Florida, Centric

Development to support market and product differentiation

Alpha 1 example

- AlphaKit[®] QuickScreen launched in Europe
- Novel point-of-care screening test that a physician or nurse can administer in the office rather than sending out to a lab
- Identifies the presence of the Z-protein, responsible for over 95% of severe Alpha-1 deficiency cases
- Patients who test positive undergo a confirmatory lab test to verify genotypes
- Product in development phase – launch to major markets over the next 1-2 years



Launch campaign developed and roll-out ongoing

Alpha 1 example continued

- Launched at German Pulmonology Congress in March to strong response
- Presented at German Internal Medicine Congress in April
- Launched in Austria in April
- Planned launch in Spain & Portugal in June
- Italian launch planned for October
- U.S. launch anticipated in 2015

Tagged?

COPD

Or rather Alpha-1?

NEW!

The AlphaKit® QuickScreen point-of-care test:
Simply screen now and gain certainty.*

- Remember to exclude Alpha-1-Antitrypsin Deficiency when diagnosing COPD**
- Easy to use – result within 15 minutes
- Free of charge
- www.alpha-1-info.com

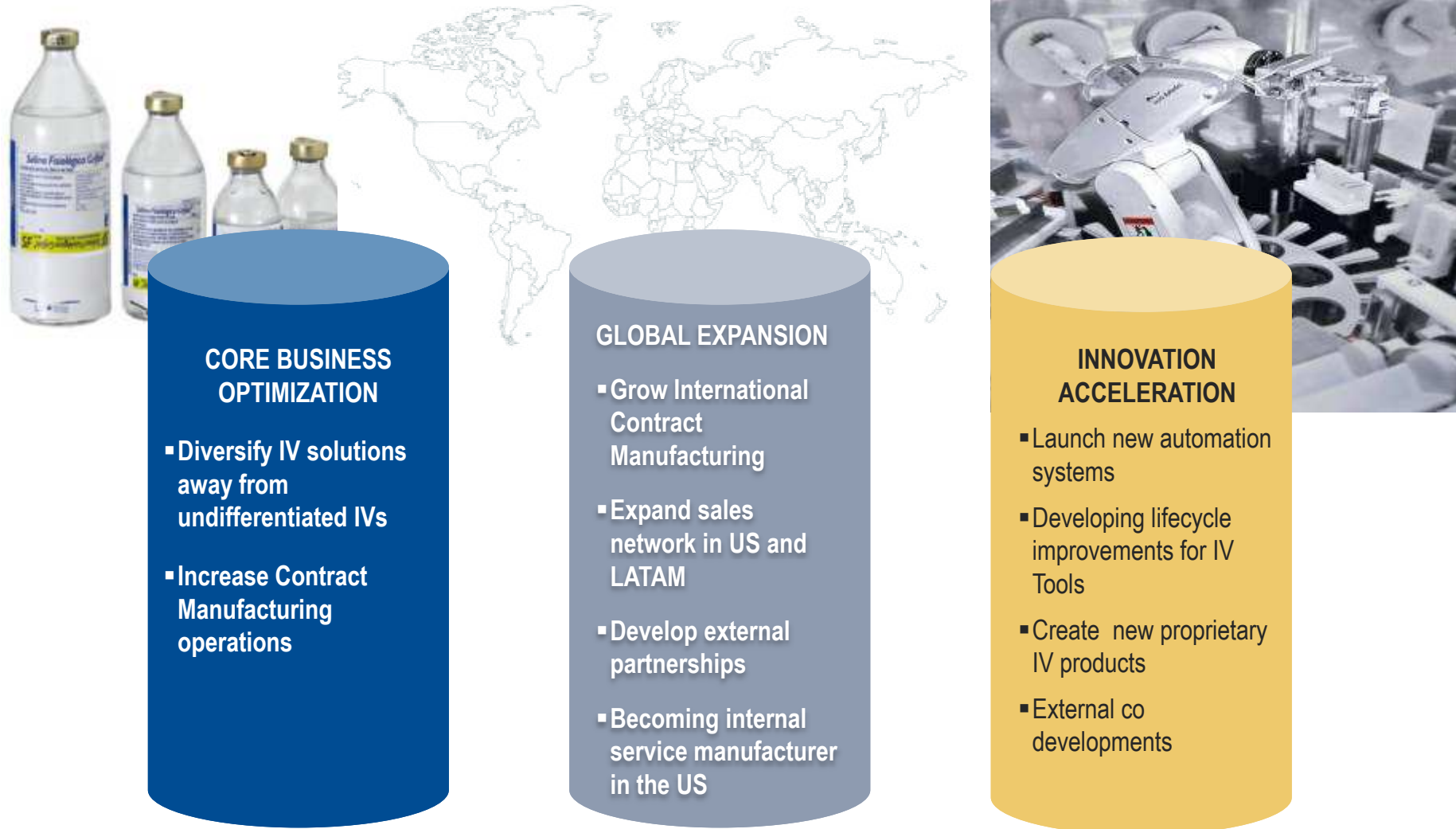
* If the test result is positive the diagnosis should be confirmed by genotyping with the AlphaKit®. Examples are used. Illustration not intended to be used for AlphaKit® QuickScreen.
** ATS/ERS Guidelines, Pulmonology 2002(16), Vogelmeier C et al. COPD Guidelines, Pulmonology 2009(16).

For more information: grifols@grifols.com
Tel: +49 (0) 69 7801 200 | 110 | info.grifols.com

AlphaKit® QuickScreen

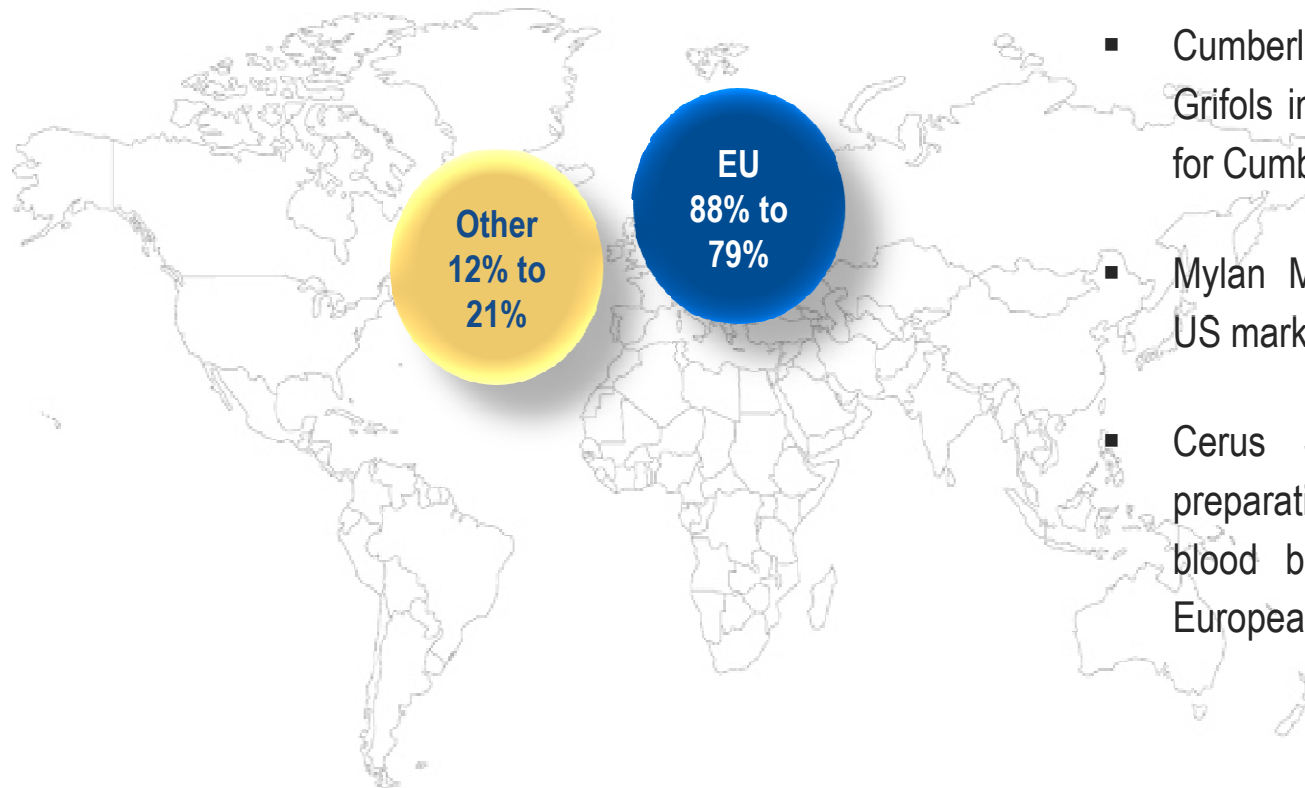
GRIFOLS
www.grifols.com

Strategic plan pillars: Hospital business priorities



Hospital business continues to expand geographically

Grifols 2011 to 2013 / Hospital sales by Region (NA, EU, ROW)



New Contract Manufacturing agreements continued to progress:

- Cumberland: IV Ibuprofen licensed to Grifols in IBAM and to be manufactured for Cumberland for the rest of the world
- Mylan Manufacturing IV Paracetamol for US market
- Cerus Special disposable sets for the preparation of inactivation solutions in blood bank applications. Exclusive in European markets

Hospital business continues to expand geographically

- Brazil H. Logistics substantial sales increase
 - New projects in LATAM grew 115% in 2013
- USA IV tools sales progressing according to plan. Growth in 2013 was driven by projects for:
 - **Misterium**[®] Modular clean rooms for iv medication compounding in Hospital Pharmacy
 - **Grifill**[®] Semiautomatic device and specialized disposables for iv medication compounding in sterile conditions
 - **IMS** Automatic storage carrousel specially adapted for clean rooms
 - **Phocus Rx**[®] Remote IV Compounding validation software





Significant progress continues to be made on commercial priorities

Our core strategies of market expansion, product differentiation and geographic expansion are successful

Significant growth opportunities remain for key proteins

Hospital business is successfully accelerating geographic diversity

Investors' & Analysts' Meeting Barcelona 2014

Grifols Diagnostics: new activities

- Carsten Schroeder -

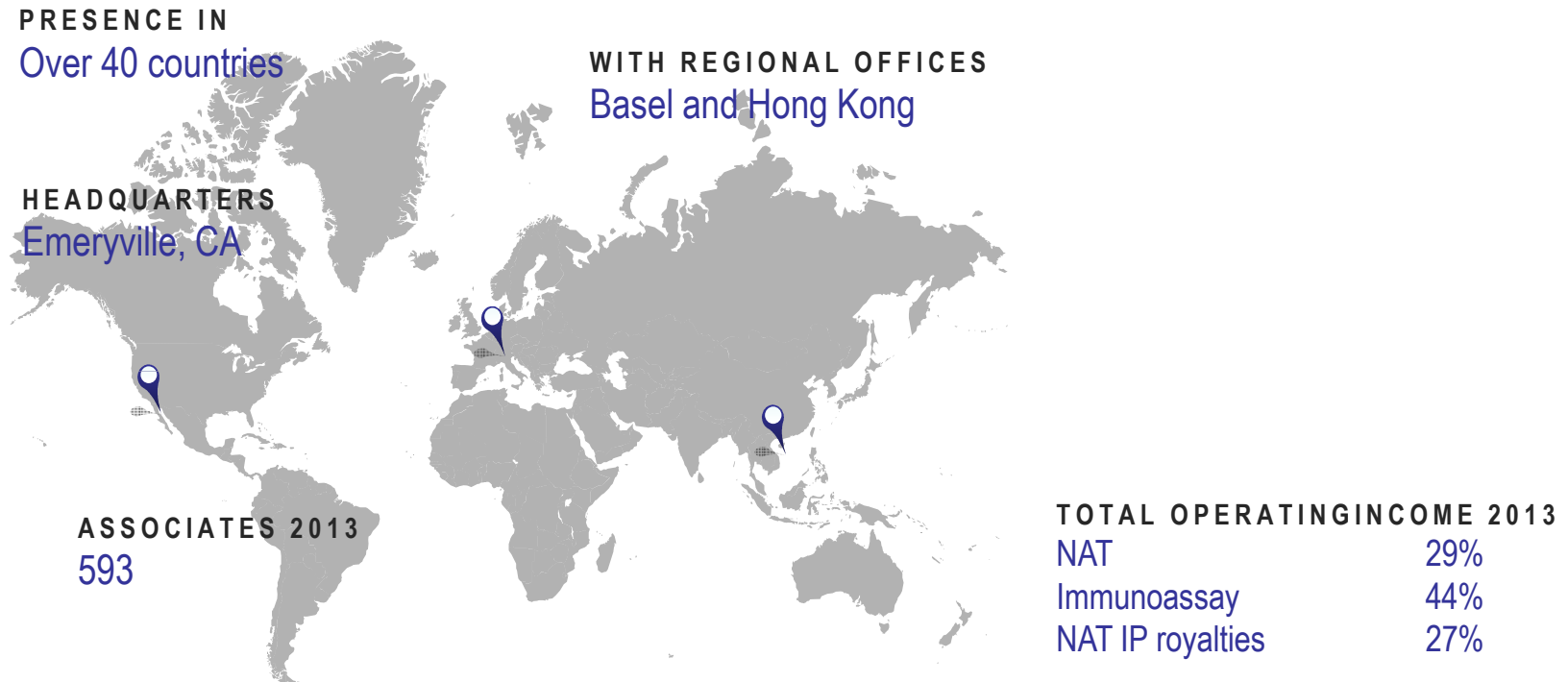
Grifols Diagnostics – post acquisition

Providing an integrated solution for blood banks and plasma donor centers:
from collection to transfusion

- Grifols Diagnostics division will account for over 18% of the company sales with an estimated combined sales of USD 1 billion
- Diagnostics manufacturing sites in Spain, Switzerland, Australia and USA
- Offices in Barcelona, Emeryville (California), Basel and Hong Kong
- Commercial presence in over 40 countries
- More than 1,000 employees with a deep pool of talent across the business

Grifols Diagnostic Solutions at-a-glance

A global leader in transfusion safety protecting 350 million patients each year...



...trusted by customers worldwide and consistently high-ranked for service & support¹

¹ Annual customer survey conducted by EW Partners

Grifols Diagnostic Solutions main business segments

A world leading suite of blood screening products

Segments	Products	Overview
Nucleic Acid Testing	Procleix® Tigris® System Procleix® Panther® System Procleix® Assays	High throughput automated platforms and best-in-class assays
Immunoassay	FDA-licensed antigens Intermediary conjugates	Antigen manufactured is used to identify the presence of HCV and HIV
NAT Royalties	IP patents on HCV and HIV	Revenue driven by HCV/ HIV out-licenses

Grifols Diagnostic Solutions in the transfusion chain



Infectious Disease testing


Procleix NAT Solutions
By Hologic and Grifols

NAT instruments
and tests



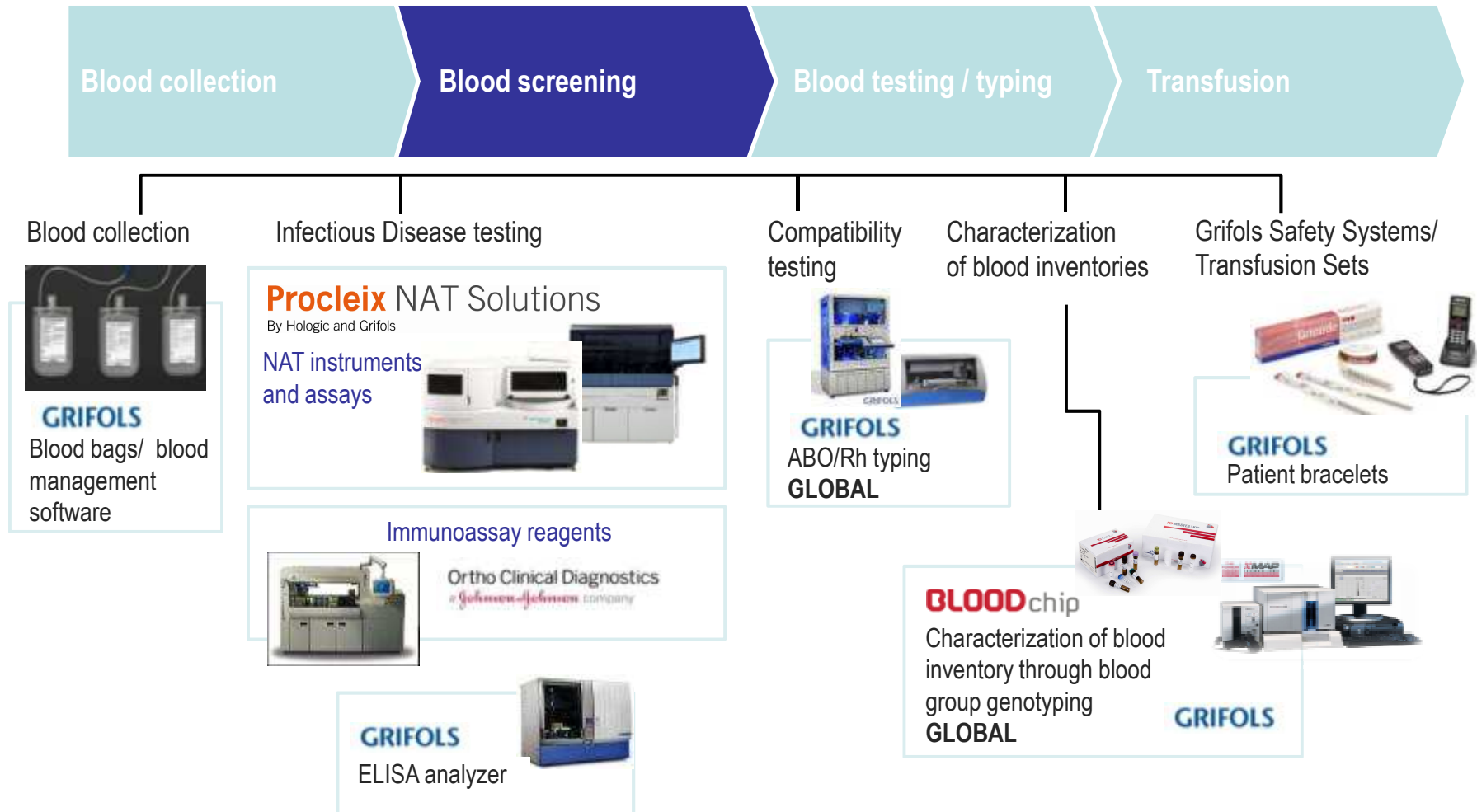
HOLOGIC GEN-PROBE

Immunoassay reagents



Ortho Clinical Diagnostics
a *Johnson & Johnson* company

Grifols Diagnostics – providing an integrated solution from collection to transfusion

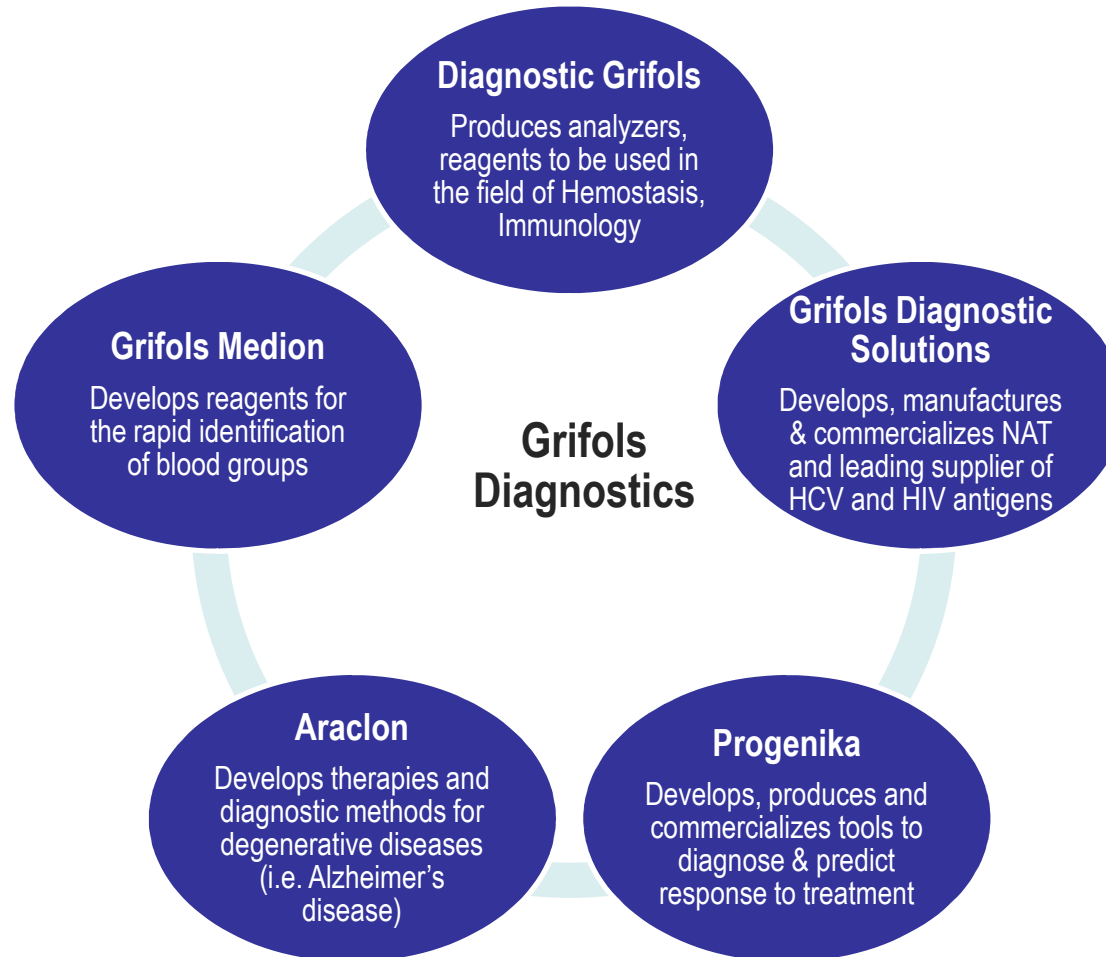


Comprehensive strategy provides platform for sustainable growth...

- ...through market share gain in developed countries and continued penetration in emerging markets
- ...continued investment in development of innovative products
- ...leveraging core business strengths



Leveraging core business strengths



In summary...

- The acquisition of Novartis Diagnostics -
 - creates the only vertically integrated solution from collection to transfusion
 - diversifies Grifols business, adding balance with a larger, growing Diagnostic business
 - expands Grifols global presence in transfusion medicine

- Grifols Diagnostic Solutions has –
 - a deep customer base and an outstanding sales and service network
 - a direct commercial presence in all developed markets, India and China; distributor presence in LatAm, EMEA and APAC

In combination, Grifols is positioned to deliver sustainable growth
in its Diagnostics division

Investors' & Analysts' Meeting Barcelona 2014

Investors' & Analysts' Meeting in Barcelona

Thursday 5th and Friday 6th
June 2014