



Innovative Pipeline

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3 November 2015

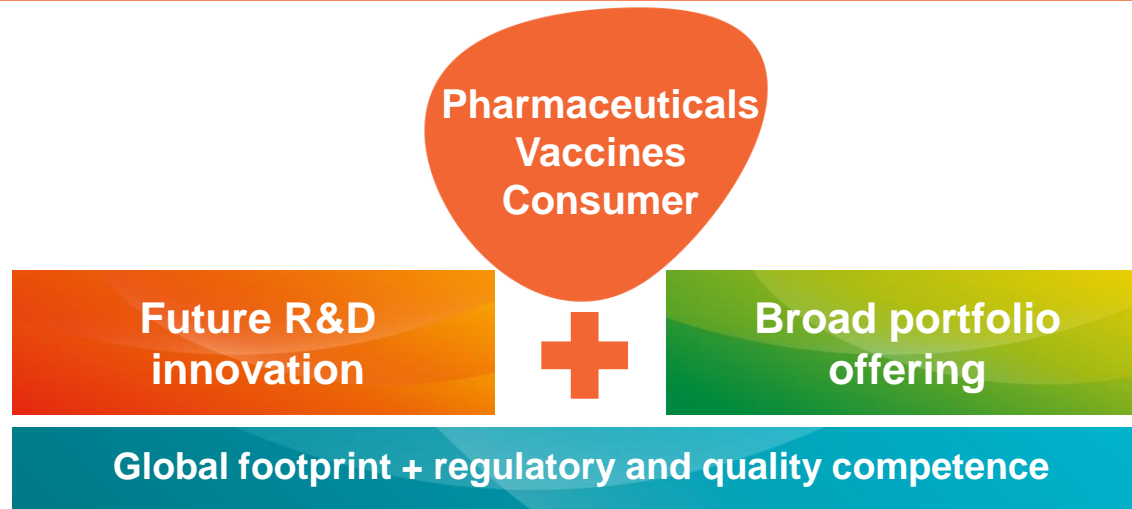
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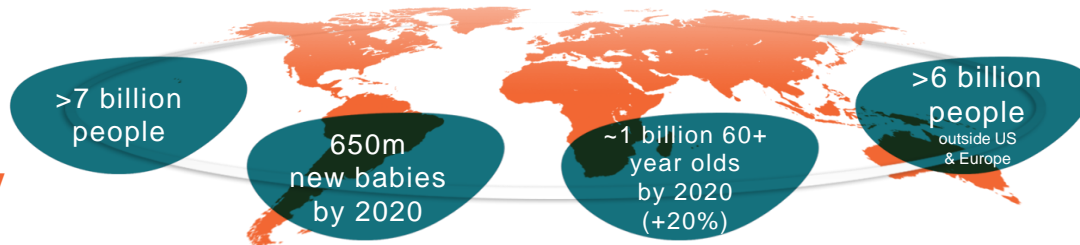
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Innovation is critical to maximising the potential of GSK in the current environment



**Clear
volume
opportunity**



**But pricing
environment
uncertain**

R&D Strategy: Reliable fill & flow with greater novelty and improved return on investment

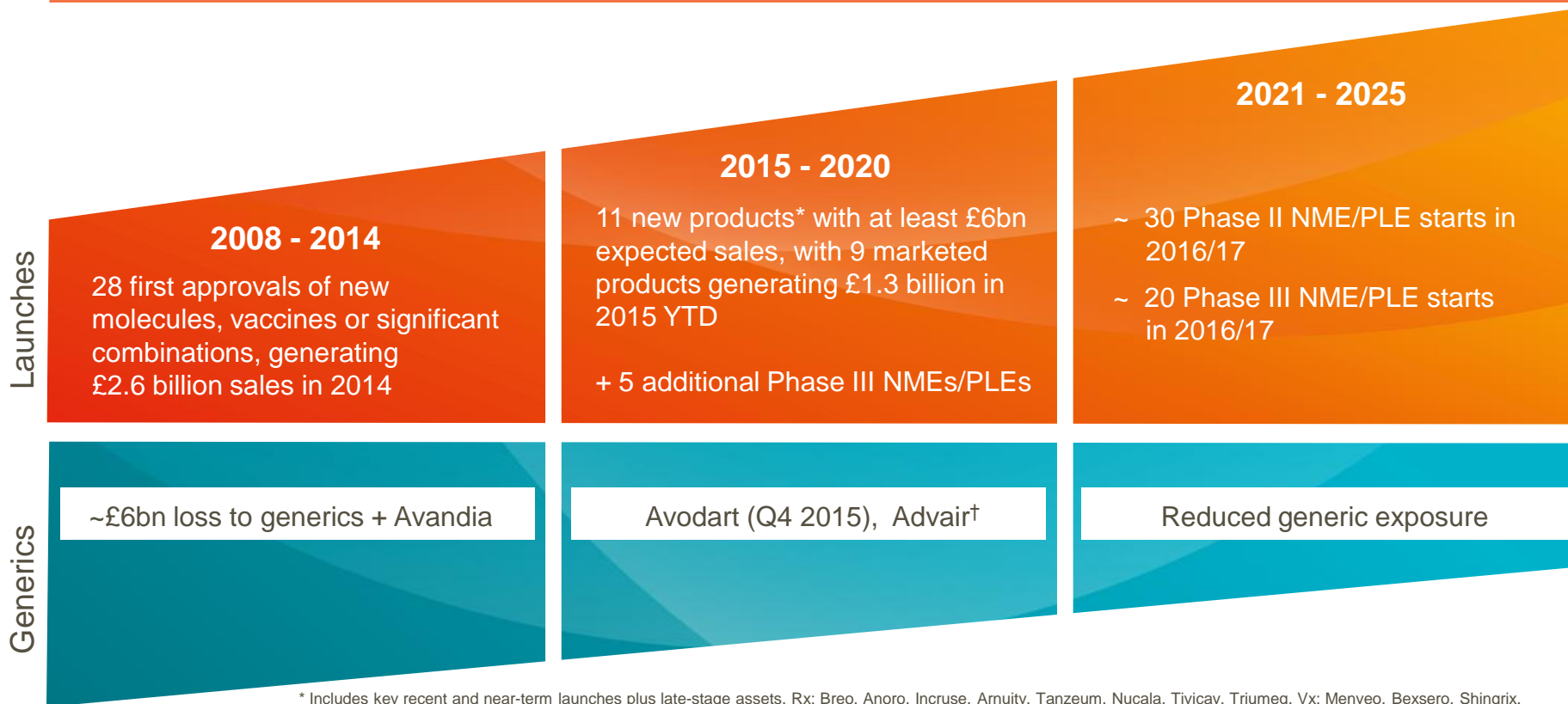


Accelerate Discovery output	Focus where science is innovative	Improve balance internal vs external	Reduce fixed cost and improve ROI
<ul style="list-style-type: none"> • Now have 30 DPUs, of which two thirds are from the original 2009 set. Average 20% turnover every 3 year cycle • 65% of NMEs* in the clinic were either discovered or worked on by the DPUs • Average of 60-65 publications annually in world class journals across pharma and vaccines 	<ul style="list-style-type: none"> • Of the ~40 assets profiled today, 80% of new molecules, biologicals and vaccines are potentially 1st in class • Almost 50% of clinical stage NMEs* are biopharm, CGT, or oligos. i.e. non-traditional white pill • Competitive advantage through epigenetics, cell & gene technology, adjuvants, self amplifying RNA, inhaled technology, chimp adenovector 	<ul style="list-style-type: none"> • 60% of NMEs* in the clinic are home-grown, 40% partnered or in-licensed • >1,500 collaborations inclusive of academic, public-private partnerships, biotech and pharma 	<ul style="list-style-type: none"> • 20% faster study execution times[^] • Pharma R&D headcount reduced from 12,000 to 8,500 since 2008, reduced to 2 global pharma R&D hubs • Balance discovery and development (pharma split 38% Discovery; 62% Development) • Divested marketed oncology portfolio for \$16bn

To deliver multiple launches per year

*NMEs: Phase I – III/submitted, per pipeline chart; † Pipeline = Phase I-III/submitted; ^ comparison vs peers based on CMR data.

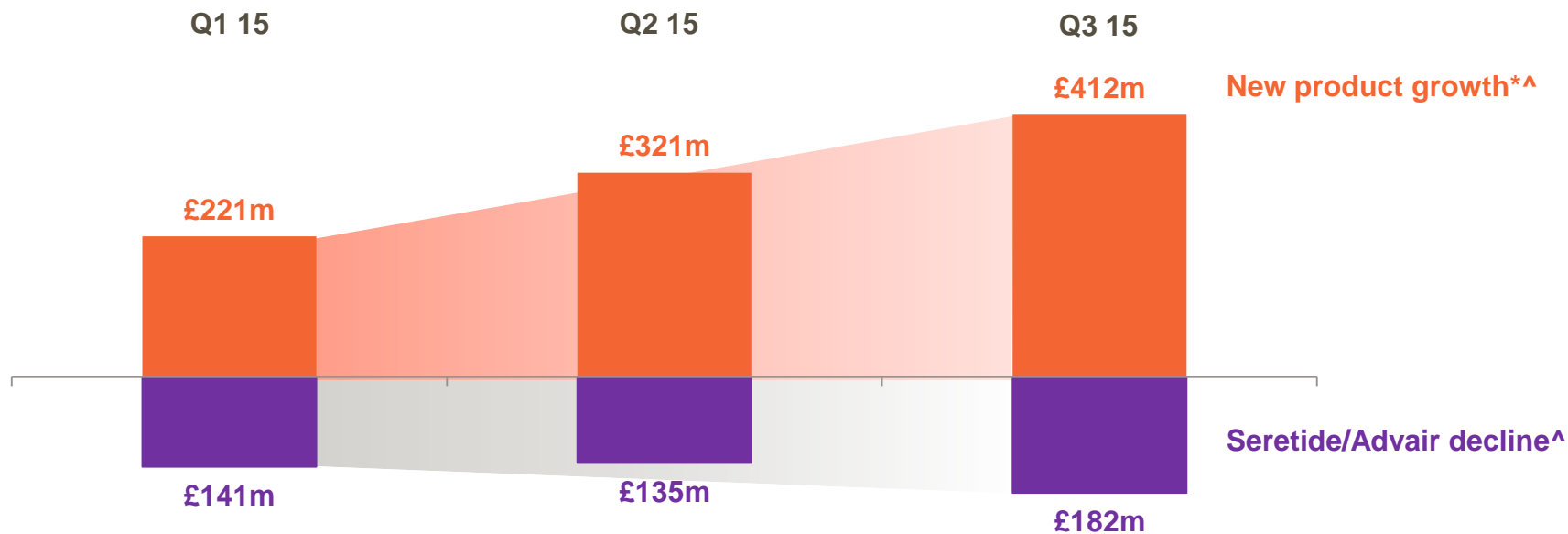
New product contribution increasing as generic exposure reduces



* Includes key recent and near-term launches plus late-stage assets. Rx: Breo, Anoro, Incruse, Arnuity, Tanzeum, Nucala, Tivicay, Triumeq. Vx: Menveo, Bexsero, Shingrix.

† A number of assets in the portfolio will face generic competition in this time frame, the most significant of which is Advair PLE= New formulations or combinations

New product growth more than offsets Advair decline



* New products defined as: Rx: Breo, Anoro, Incruse, Arnuity, Tanzeum, Tivicay, Triumeq. Vx: Menveo, Bexsero

[^] Growth and decline in the respective quarters on a Sterling basis

Assets profiled at R&D day by planned filing date



7 NMEs & 5 PLEs

Nucala (mepolizumab) <i>IL-5 mAb</i> Severe Asthma	sirukumab <i>IL-6 mAb</i> Rheumatoid Arthritis
mepolizumab <i>IL-5 mAb</i> COPD	GSK2696273 <i>Ex-vivo stem CGT</i> ADA-SCID
mepolizumab <i>IL-5 mAb</i> EGPA	GSK2696274 <i>Ex-vivo stem CGT</i> Metachromatic Leukodystrophy
fluticasone furoate+vilanterol +umeclidinium ICS/LABA/LAMA COPD	GSK2696275 <i>Ex-vivo stem CGT</i> Wiscott-Aldrich Syndrome
dolutegravir + rilpivirine <i>Integrase inhibitor + NNRTI</i> HIV	GSK2998728† <i>TTR production inhibitor</i> FAP
Benlysta <i>Subcutaneous BlyS mAb</i> SLE	Shingrix Herpes Zoster prophylaxis

11 NMEs & 5 PLEs

mepolizumab <i>IL-5 mAb</i> Nasal Polyposis	tarextumab† <i>Notch 2/3 mAb</i> Pancreatic Cancer, SCLC	GSK2398852+ GSK2315698 <i>SAP mAb + SAP depleter</i> Amyloidosis
mepolizumab <i>IL-5 mAb</i> HES	GSK525762 <i>BET inhibitor</i> Solid Tumours, Haematological Malignancies	GSK2998728† <i>TTR production inhibitor</i> TTR Cardiomyopathy
dolutegravir + lamivudine FDC <i>Integrase inhibitor+NRTI</i> HIV	GSK2879552 <i> LSD1 inhibitor</i> Acute Myeloid Leukaemia, SCLC	daprodustat* <i>Prolyl hydroxylase inhibitor</i> Anaemia of CKD
cabotegravir <i>Long acting integrase inhibitor</i> HIV, HIV PrEP	GSK3174998 <i>OX40 agonist mAb</i> Solid tumours, Haematological Malignancies	MenABCWY <i>US filing</i> Meningococcal A,B,C,W and Y disease prophylaxis
gepidacin <i>Type 2 topoisomerase inhibitor</i> Bacterial Inf.	GSK3377794† # <i>NY-ESO-1 TCR</i> Sarcoma, Mult. Myel., Melanoma Ovarian, NSCLC	
sirukumab <i>IL-6 mAb</i> Giant Cell Arteritis	GSK3359609 <i>ICOS agonist mAb</i> Solid tumours, Haematological Malignancies	

21 NMEs & 5 PLEs

sirukumab <i>IL-6 mAb</i> Severe Asthma	GSK3008348 <i>Alpha V beta 6 integrin antagonist</i> IPF	GSK525762 <i>BET inhibitor</i> Therapy Resistant RA	GSK3196165 <i>GM-CSF mAb</i> RA, OA	RSV paediatric Respiratory syncytial virus prophylaxis
danirixin <i>CXCR2 antagonist</i> COPD	<i>Long acting IL-5 mAb (NBE)</i> Asthma, Others	GSK2330811 <i>OSM mAb</i> Systemic Sclerosis	GSK2696277†* <i>Ex-vivo stem CGT</i> Beta Thalassemia	COPD † COPD vaccine
GSK2269557 <i>PI3 kinase delta inhibitor</i> COPD, Asthma	<i>IL5/13 bispecific antibody</i> Asthma	GSK2618960 <i>IL-7 receptor mAb</i> Sjogren's Syndrome	daprodustat* <i>Prolyl hydroxylase inhibitor (topical)</i> Wound Healing	
GSK2862277 <i>TNFR1 dAb</i> Acute Lung Injury	GSK2878175 <i>NS5B inhibitor</i> HCV	GSK2831781 <i>LAG-3 mAb</i> Autoimmune Diseases	mepolizumab <i>IL-5 mAb</i> Severe Atopic Dermatitis	
GSK2245035 <i>TLR7 agonist</i> Asthma	GSK3228836† <i>Antisense oligonucleotide</i> HBV	GSK2982772 <i>RIP1 kinase inhibitor</i> Psoriasis, RA, UC	RSV maternal Respiratory syncytial virus prophylaxis	
GSK3191812 <i>TSLP dAb</i> Asthma	belimumab + CD20 <i>BlyS+CD20</i> Sjogren's Syndrome	GSK3050002 <i>CCL20 mAb</i> Psoriatic Arthritis	GBS maternal Group B streptococcus prophylaxis	

- Respiratory
- HIV / Infectious Diseases
- Immuno-Inflammation
- Oncology
- Rare Diseases
- Other Pharma
- Vaccines

† Subject to exercise of option
 # Subject to collaborator agreement
 * EU filing
 ^ USAN, INN approval pending
 ◊ Planned to be filed post 2025

Focus on delivering innovative and sustainable presence in 6 key areas



**HIV / Infectious
Diseases**

Respiratory

Vaccines

**Immuno-
Inflammation**

Oncology

**Rare
Diseases**

Focus for today: Innovation to deliver products of value



Patrick Vallance

President, Pharmaceuticals R&D



Moncef Slaoui

Chairman of Vaccines

