Allergy Therapeutics

Preliminary results for the year ending 30 June 2017

Delivering on our strategy – three areas for growth
The information contained in this presentation (“Presentation”) is being supplied to you solely for your information and may not be copied, reproduced or further distributed to any person or published, in whole or in part, for any purpose.

No reliance may be placed for any purpose whatsoever on the information contained in this Presentation or on its completeness. No representation or warranty, express or implied, is given as to the accuracy of the information or opinions contained in the Presentation and no liability is accepted for any such information or opinions by Allergy Therapeutics plc (the “Company”) or any of its directors, members, officers, employees, agents or advisers or any other person. Notwithstanding this, nothing in this paragraph shall exclude liability for any representation or warranty made fraudulently. The Presentation speaks as of the date shown on the front cover. The Company assumes no obligation to notify or inform the recipient of any developments or changes occurring after the date of this Presentation that might render the contents of the Presentation untrue or inaccurate in whole or in part.

This Presentation does not constitute or form part of any offer of or invitation to sell or issue, or any solicitation of any offer to purchase or subscribe for any securities for sale in any jurisdiction, nor shall it, or any part of it, or the fact of its distribution form the basis of, be relied upon in connection with, or act as an inducement to enter into, any contract or commitment to do so. The Company’s securities have not been and will not be registered under the U.S. Securities Act of 1933 (the “Securities Act”), and may not be offered or sold in the United States absent registration under the Securities Act or an available exemption from, or transaction not subject to, the registration requirements of the Securities Act.

This Presentation includes “forward-looking statements” which include all statements other than statements of historical facts, including, without limitation, those regarding the Company’s financial position, business strategy, plans and objectives of management for future operations (including development plans and objectives relating to the products and services of the Company and its subsidiaries (the “Group”)), and any statements preceded by, followed by or that include forward-looking terminology such as the words “targets”, “believes”, “estimates”, “expects”, “aims”, “intends”, “will”, “can”, “may”, “anticipates”, “would”, “should”, “could” or similar expressions or the negative thereof.

Such forward-looking statements involve known and unknown risks, uncertainties and other important factors beyond the Group’s control that could cause the actual results, performance or achievements of the Group to be materially different from future results, performance or achievements expressed or implied by such forward-looking statements. Such forward-looking statements are based on numerous assumptions regarding the Group’s present and future business strategies and the environment in which the Group will operate in the future. These forward-looking statements speak only as at the date of this Presentation. The Group expressly disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained in the Presentation to reflect any change in the Group’s expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based.
Introduction to Allergy Therapeutics

Leading allergy immunotherapy company with a portfolio of marketed products and strong development pipeline

Provide treatments that have potential to cure disease, not just symptoms. Focus on moderate to severe patients

Approximately 500 employees

Headquartered and manufacturing base in Worthing, West Sussex

Double digit compound annual growth achieved over the past 18 years

Robust revenue growth and successful M&A delivered. Three pillar strategy for growth: Europe, pipeline and US

Spun out of Smith Kline Beecham in 1999

Market capitalisation of approximately £200m, AIM ticker LSE:AGY
Financial highlights
~ Double digit compound annual growth achieved over the past 18 years ~

15*% increase in revenue at constant currency to £55.5m (2016: £48.5m)**

32% increase in revenue at £64.1m (2016: £48.5m)

Strong growth in operating profit pre R&D up

72% to £7.4m as a result of leveraging broad investment in the business (2016: £4.3m)

R&D expenditure of £9.3m (2016: £16.2m)

Cash balance of £22.1m (2016: £23.4m)

*Percentage based on numbers in thousands (2017: £55.545m, 2016: £48.509m)
**Constant currency uses prior year weighted average exchange rates to translate current year foreign currency denominated revenue to give a year on year comparison excluding the effects of foreign exchange movements. See table in financial review for an analysis of revenue.

N.B. All financial dates refer to the financial year. All clinical dates refer to the calendar year.
Operational highlights

Increased market share in main European markets to 13% (2016: 12%)

- Commencement of recruitment for pivotal Phase III Pollinex Quattro Birch trial
- US Grass MATA programme proceeding well; safety study successfully completed
- First patient recruited for Acarovac MPL Phase I trial in Spain
- Positive pre-clinical proof of concept trial data announced for Polyvac Peanut
Delivering Our Strategy

Three Pillars to the Business

Expanding in Europe
- Strongly performing profitable business
- Growing market share and additional product registrations

Strong Pipeline
- New technologies underpin pipeline breadth and depth
- Investment strategy supported by growing revenue stream

Preparing for US entry
- Significant opportunity in largest allergy market
- Changing environment to drive market share towards Allergy’s products
Delivering Our Strategy

EXPANDING IN EUROPE
Sales Growth of 15%* in 2017 and increase of market share to 13% from 12% driven by:

- Growing approved and named-patient basis sales
- Innovative, convenient and patient-friendly (short-course) products
- Focused investment across business reflected in performance
- Increased portfolio of products – Acarovac Plus and Synbiotics
- Scaling-up to drive technological and geographical expansion

Double Digit CAGR growth over the last 18 years since formation

*Percentage based on figures in thousands (2017: £55.545m, 2016: £48.509m)
Sales breakdown for FY 2017

- **UK**: 4%
- **Netherlands**: 4%
- **Germany**: 59%
- **Czech Republic**: 2%
- **Slovakia**: 2%
- **Austria**: 7%
- **Switzerland**: 3%
- **Italy**: 9%
- **Spain**: 9%
- **Other**: 1%

Sales breakdown for FY 2017:
- **Pollinex**: 14%
- **Venomil**: 3%
- **Pollinex Quattro**: 45%
- **Oralvac**: 17%
- **Tyrosine S / TU**: 4%
- **Third Party Products**: 10%
- **Acarovac Plus**: 2%
- **TyroMILBE**: 5%
- **Diagnostics**: 1%
- **Third Party Products**: 10%

†Sales breakdown based on gross sales at budget exchange rates (before freight, discounts, rebates and exchange). After deducting discounts, rebates, freight charges and foreign exchange adjustments, total sales for FY 2017 is £64.1 million.
Delivering Our Strategy

STRONG PIPELINE
## Broad Pipeline

<table>
<thead>
<tr>
<th>Pre-clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Market/Registered</th>
<th>Also available as a Named Patient Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollinex Grass</td>
<td>Short-course SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>Pollinex Tree</td>
<td>Short-course SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>Pollinex Ragweed</td>
<td>Short-course SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>-</td>
</tr>
<tr>
<td>Venomil Bee</td>
<td>Bee venom SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td><strong>✓</strong></td>
</tr>
<tr>
<td>Venomil Wasp</td>
<td>Wasp venom SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>-</td>
</tr>
<tr>
<td>Pollinex Quattro Grass</td>
<td>Short-course Grass SCIT with MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Pollinex Quattro Birch</td>
<td>Short-course Birch SCIT with MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Pollinex Quattro Ragweed</td>
<td>Short-course Ragweed SCIT with MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>-</td>
</tr>
<tr>
<td>Pollinex Quattro Grass</td>
<td>Short-course Grass SCIT with MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Pollinex Quattro Trees</td>
<td>Short-course Tree SCIT with MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Oralvac Grass, Trees &amp; house dust mite</td>
<td>Sublingual immunotherapy with flexible-dosing</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Acarovac Platform</td>
<td>Short-course modified Allergen HDM SCIT + MPL</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
<tr>
<td>Polyvac Peanut</td>
<td>Short-course Peanut SCIT</td>
<td></td>
<td></td>
<td>Market/Registered</td>
<td>✓</td>
</tr>
</tbody>
</table>

* - 0.5mL formulation  
** - 1.0 mL formulation
Pipeline Trials

Positive top-line results for Phase II Birch dosing study (B204) using Conjunctival Provocation Test

PQ Birch – Phase III (Germany)
first patient already treated
results expected H2 2018
if successful, regulatory submission 2019

PQ Grass – Phase II (US & Germany)
first patient treated in autumn 2017
results expected H2 2018
if successful, second Phase III study to follow in US/Europe

Acarovac MPL Phase I
trial with 32 patients in progress in Spain
results expected H2 2018
potential for US market with two Phase III trials
Positive results achieved from preclinical research of Polyvac Peanut

Single dose of Virus Like Particle (VLP) combined with recombinant peanut allergen successfully protects against anaphylaxis when challenged with peanut.

Those vaccinated with candidate vaccine exhibited no symptoms compared to placebo, when challenged with peanut.

Safety profile of product evaluated and found not to induce anaphylaxis.

Commencing an R&D investment programme of c. £3m to progress programme through to start of Phase I trials over a 2-3 year period.

Peanut represents a new opportunity into $8bn* worldwide food allergy market.

Pre-clinical development progressing according to plan with important product differentiation demonstrated – aim is long-term immunity.

*The Journal of Allergy and Clinical Immunology 2016. 1% of US population. EACCI Food Allergy and Anaphylaxis Guidelines Group 2016 0.2% of Western European Population. Management assumption of annual treatment of $2k.
Delivering Our Strategy

PREPARING FOR US ENTRY
The Evolving US Opportunity

- **$2 billion**
  - Estimated allergy immunotherapy market

- **2-3 million**
  - Americans receive allergy immunotherapy

- **Currently no registered injected products**

- Estimated peak grass sales
  - **$300-400 million**

- Some adherence levels as low as **15%**

- Current treatment:
  - up to **100 injections over 3-5 years**

**Internal estimate
***Professor Lawrence DuBuske MD
P&L – year ended to 30 June 2017

<table>
<thead>
<tr>
<th></th>
<th>2017 £’m</th>
<th>2016 £’m</th>
<th>Variance £’m</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>64.1</td>
<td>48.5</td>
<td>15.6</td>
<td>32%</td>
</tr>
<tr>
<td>Gross profit</td>
<td>47.4</td>
<td>34.4</td>
<td>13.0</td>
<td>38%</td>
</tr>
<tr>
<td>Overheads</td>
<td>(40.7)</td>
<td>(30.3)</td>
<td>(10.4)</td>
<td>(34%)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>(9.3)</td>
<td>(16.2)</td>
<td>6.9</td>
<td>43%</td>
</tr>
<tr>
<td>Other Income</td>
<td>0.7</td>
<td>0.2</td>
<td>0.5</td>
<td>0%</td>
</tr>
<tr>
<td>Operating profit</td>
<td>(1.9)</td>
<td>(11.9)</td>
<td>10.0</td>
<td>(84%)</td>
</tr>
<tr>
<td>Financing costs</td>
<td>(0.1)</td>
<td>(0.1)</td>
<td>0.0</td>
<td>0%</td>
</tr>
<tr>
<td>Tax</td>
<td>(0.5)</td>
<td>(1.0)</td>
<td>0.5</td>
<td>50%</td>
</tr>
</tbody>
</table>

### Strong sales performance in most markets

### Strong sales drives gross profit growth

### Overheads up
due to FX and investment

### Significant R&D investment last year
in US Grass Study and PQ Birch in Europe

### Operating profit pre R&D of £7.4m
(2016: £4.3m) due to investment, leveraging strong sales
**Significant increase in sales against flat markets**

**Most markets performing well**

**Strong growth in**  
Pollinex Quattro, Venomil and Pollinex

**Rebates up due to increase in prices and volume wins in Germany**

**FX impact due to weaker sterling for whole period**

<table>
<thead>
<tr>
<th></th>
<th>2017 £'m</th>
<th>2016 £'m</th>
<th>Variance £'m</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Revenue at Constant Exchange Rate</td>
<td>60.5</td>
<td>52.4</td>
<td>8.1</td>
<td>15%</td>
</tr>
<tr>
<td>Rebate at Constant Exchange Rate</td>
<td>(5.0)</td>
<td>(3.9)</td>
<td>(1.1)</td>
<td>(28%)</td>
</tr>
<tr>
<td>Net Revenue at Constant Exchange Rate</td>
<td>55.5</td>
<td>48.5</td>
<td>7.0</td>
<td>14%</td>
</tr>
<tr>
<td>Effect of Foreign Exchange</td>
<td>8.6</td>
<td>8.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Revenue</td>
<td>64.1</td>
<td>48.5</td>
<td>15.6</td>
<td>32%</td>
</tr>
</tbody>
</table>

* Constant exchange rate Euro/£: 1.36  
Current exchange rate Euro/£: 1.16 1.36
### Balance sheet at 30 June 2017

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2016</th>
<th>Var</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£'m</td>
<td>£'m</td>
<td>£'m</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>9.6</td>
<td>9.7</td>
<td>(0.1)</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>5.5</td>
<td>5.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Investments</td>
<td>4.6</td>
<td>4.0</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19.7</td>
<td>19.1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>7.9</td>
<td>6.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Inventories</td>
<td>7.5</td>
<td>7.7</td>
<td>(0.2)</td>
</tr>
<tr>
<td>Cash</td>
<td>22.1</td>
<td>23.4</td>
<td>(1.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37.5</td>
<td>37.6</td>
<td>(0.1)</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financing liabilities</td>
<td>(3.3)</td>
<td>(3.4)</td>
<td>0.1</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>(23.9)</td>
<td>(23.0)</td>
<td>(0.9)</td>
</tr>
<tr>
<td><strong>Net assets</strong></td>
<td>30.0</td>
<td>30.3</td>
<td>(0.3)</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital and share premium</td>
<td>103.0</td>
<td>103.0</td>
<td>0.0</td>
</tr>
<tr>
<td>P&amp;L account and other reserves</td>
<td>(73.0)</td>
<td>(72.7)</td>
<td>(0.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30.0</td>
<td>30.3</td>
<td>(0.3)</td>
</tr>
</tbody>
</table>

**Increase in non-current assets**
driven by currency movements and investment in infrastructure

**Trade debtors higher**
due to timing of significant receipt

**Cash position**
of £22.1m

**Debt of £3.3m**
Seasonal overdraft in place (undrawn)

**Other liabilities increase**
due to R&D creditors
Funds flow for the year ended June 2017

<table>
<thead>
<tr>
<th></th>
<th>2017 £m</th>
<th>2017 £m</th>
<th>2016 £m</th>
<th>2016 £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening cash balance 1st July</td>
<td>23.4</td>
<td></td>
<td>21.2</td>
<td></td>
</tr>
<tr>
<td>Loss before tax</td>
<td>(2.0)</td>
<td>(12.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustments re operations</td>
<td>3.5</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash generated by operations</td>
<td>1.5</td>
<td>(11.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax and interest paid</td>
<td>(1.3)</td>
<td>(0.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investments and acquisitions</td>
<td>(0.5)</td>
<td>(0.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>(1.5)</td>
<td>(1.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash used in investing activities</td>
<td>(2.0)</td>
<td>(1.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proceeds from issue of shares</td>
<td></td>
<td></td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>Net movement in borrowings</td>
<td>(0.2)</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash used in financing activities</td>
<td>(0.2)</td>
<td></td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>Effects of exchange rates on cash</td>
<td>0.7</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Closing Cash Balance 30 June</td>
<td>22.1</td>
<td></td>
<td>23.4</td>
<td></td>
</tr>
</tbody>
</table>

Net cash generated driven by strong trading, and currency effect and reduced study activity.

Capital investment in factory to improve efficiency and upgrade for FDA.

Cash position strong at year end but some expenditure in R&D carried forward to 2018.
Summary and Outlook

2018 set to be a pivotal year

Delivering against our strategy: three pillars to growth

- Strong financials set to continue
- Clinical trials progressing as planned – broad pipeline underpinned by innovative technologies
- Focused strategy to be first to market in the US SCIT segment

2018 set to be a pivotal year:
- Growth and expansion in European business
- Results of pivotal Birch Phase III trial and US Grass Phase II trial
- Robust future product development pipeline

Board remains confident about Group’s future prospects

Strong trading in 2017:

15*% sales growth at constant currency

13% market share

*Percentage based on figures in thousands (2017: £55.545m, 2016: £48.509m)
2018 expected key value driving newsflow

Q4 2017
First patient treated – PQ Grass Phase II Trial for US and Europe

Mar 18
PQ Grass Phase II for US and Europe – results of conjunctival provocation test dosing trial in Europe

H2 2018
PQ Birch Phase III for Europe - results of pivotal field trial for PQ technology and part of the TAV process

Acarovac MPL Phase I – results for the new dust mite technology which could be developed for the Global market
## Analysis of regulated products

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Named patient basis</th>
<th>Approved¹</th>
<th>German TAV process</th>
<th>US Process</th>
<th>Other Clinical trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollinex</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollinex Quattro Grass</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pollinex Quattro Birch</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pollinex Quattro Ragweed</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pollinex Quattro Trees</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pollinex Quattro Grass &amp; Birch</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pollinex Quattro Grass &amp; Tree</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pollinex Quattro Grass &amp; Mugwort</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acarovac Plus</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acarovac MPL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TyroMILBE</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venomil</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TA Top</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oralvac Grass</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Oralvac Trees</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Oralvac House Mite</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

¹ Approved in Germany or other major market

<sup>Trials in process</sup> <sup>CMC process</sup> <sup>Trials undertaken</sup>
Global presence

Sales and marketing network comprising c.160 European sales force

Subsidiaries in 7 countries and distribution agreements in additional 13 countries
Portfolio of products to capture US opportunity

- **Proprietary, IP protected technology**
- **De-risked opportunity**
  - Treated more than 250,000 patients and marketed in 7 countries
- **First mover advantage**
  - First to market in the seasonal injected segment
  - High entry barriers: regulatory requirements for extensive trials on efficacy and safety
- **Strategic fit for US market**
- **Building on Progress to date in the US:**
  - US$ 100 million invested in clinical studies to date
  - 15 clinical trials completed to date, including Phase I, II & III successful studies
  - Investigated in over 3,000 patients worldwide, mainly in the US
Changing US landscape to drive market share

**Current US SCIT market**
- **Home made, unlicensed** preparation
- **Non** GMP manufacturing
- **Non** registered
- **No** clinical evidence
- **Long** courses of treatment: 50 to 100 injections
- **Slow to act**: 6 to 12 months
- **Low** compliance

**Allergy Therapeutics’ entry in the US**
- **Standardised** dose vaccine
- **GMP manufactured**
- **FDA submission**
- **Multiple** clinical studies
- **Ultra-short** course treatment: 4 to 6 injections
- **Efficacy** in 3 weeks
- **High** compliance
Microcrystalline tyrosine (MCT)

**Patent protection for MCT**

*Processing patent covers MCT*

MCT particles are formulated as sterile in state of the art processes enabling defined particle morphology and size optimised for binding to wide variety of antigens.

---

**R&D update Allergy / Non – Allergy indications**

*Within the last 12 months, studies have been completed supporting MCT use as a depot immunomodulator in each application:*

Key publication in *The Journal of Inorganic Biochemistry* provides insight to the role of the (MCT) for use in existing and future therapeutic development incl. synergies with MCT and MPL in our Pollinex Quattro brand

Immunomodulation of MCT in allergy (publication pending 2016) – University of Zurich

MCT improves efficacy in non-allergy models (Influenza, Malaria) – Public Health England, University of Oxford (Jenner Institute), respectively. (publication in preparation)

MCT to enhance immunogenicity of different vaccines – for malaria study
Pollinex Quattro: 4 injections in 3 weeks, efficacy in 3 weeks

**MPL Adjuvant**
- MPL (Monophosphoryl Lipid A) is a non-toxic derivative of lipopolysaccharide (LPS)
- MPL allows the SIT treatment course to be shortened (big impact on adherence)
- Regulates expression of co-stimulatory molecules on antigen-presenting cells
- Acts locally as a TLR4 agonist and increases IgG production

**Allergoid**
- Allergen chemically modified with glutaraldehyde
- Retains IgG-allergen stimulating properties
- Reduces IgE reactivity vs. that induced by native allergens used in SIT

**MCT**
- A natural amino acid which is readily metabolised
- L Tyrosine retains the Allergoid and MPL at the site of injection (half life = 48 hours) as depot
- 30-year history of safe use in vaccines
- Rebalances TH1 response

PQ: a unique platform technology
Acarovac MPL House Dust Mite Product

Phase I first patient treated in June 2017 as part of 32 patient trial (AM101)

Results of Phase I Trial expected autumn of 2018

Acarovac product without MPL growing well in Spain and Austria

Market opportunity of $3-4bn* worldwide with only Europe partly tapped already

Potential of 8 injection model compared to 12-15 average of competitors and once a day for 3 years oral treatment

Potential additional product in US portfolio following two Phase III trials

*The Journal of Allergy and Clinical Immunology 2016. 1% of US population. EACCI Food Allergy and Anaphylaxis Guidelines Group 2016 0.2% of Western European Population. Management assumption of annual treatment of $2k
### Strategy

**MCT, MPL & VLP**  
Researching on MCT mechanism of action

Potential for licencing or use in development of products to boost efficiency

---

### Studies

Pre-clinical study using MCT in a seasonal influenza model – elicited immune response indicative of protection

Pre-clinical model using MCT and VLP in malaria – offered best protection compared with antigens formulated with aluminium

Studies show MCT both alone and in adjuvant system elicit high, sustained antibody titres demonstrating enhanced protective efficacy compared to conventional adjuvants including aluminium
# Platform Technologies

<table>
<thead>
<tr>
<th></th>
<th>Modified Allergen (Allergoid)</th>
<th>Native Allergen</th>
<th>Recombinant Allergen</th>
<th>Microcrystalline Tyrosine (MCT)</th>
<th>Monophosphoryl Lipid A (MPL)</th>
<th>Virus-Like Particles (VLP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollinex</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pollinex Quattro</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>OralVac</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acarovac Plus</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acarovac MPL</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Venomil</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Peanut*</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
</tbody>
</table>

* - Product under pre-clinical investigation, full product profile yet to be determined
TAV (Therapy Allergy Ordinance) process

- Includes all products without registration
- 30% of all submitted products have been removed from the process and are no longer on the market (Dr. Vieths, 2016)
- Germany contributes 59% of AGY Group sales
- Future advantage of clinical evidence to support marketing plus potential reduction in competition
- All of Allergy’s products submitted in 2011 are still in process

TAV German process initiated in 2008 and driven by the Paul Ehrlich Institute based on European legislation.
Notes:
1. While in the TAV process all products can continue to be sold. Once rejected they must be removed from the market
2. All products must either have been approved or must go through the TAV process
3. The trials needed are tolerability, dose ranging and efficacy