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Important factors that may cause such a difference for Oasmia include, but are not limited to: (i) the macroeconomic development, (ii) change in the competitive climate and (iii) change in interest rate level.

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Corporate Overview

- **Oasmia Pharmaceutical AB (NASDAQ: OASM)** is a Swedish pharmaceutical company focused on innovative treatments within human and animal oncology


- ADSs are traded on NASDAQ NYC, one ADS represents three ordinary shares

- Executive Chairman and founder Julian Aleksov is one of the largest shareholders

- Founded in Stockholm, Sweden, in 1998

- Headquartered in Uppsala, Sweden with subsidiaries in US, Hong Kong and Moscow

- FDA and EMA approved production facility in Sweden

- 60 employees

www.oasmia.com
www.advavet.com
The product candidates utilize a proprietary, nanoparticle formulation technology that is designed to facilitate the administration of intravenously-delivered active pharmaceutical ingredients, without the addition of toxic solvents.

**XR17**, Oasmia’s novel vitamin A based drug delivery system, is the basis for a pipeline which consists of five (5) clinical stage programs for the treatment of various cancers in both humans and animals.

**Apealea** (alternatively branded as Paclical in certain countries), Oasmia’s lead human health program recently completed a Phase 3 study with results demonstrating:
- Non-inferiority to TAXOL® pertaining to efficacy both in PFS and OS
- Improved safety and tolerability profile to that of TAXOL

Approved as Paclical in Russia and Kazakhstan,

Apealea received **Positive** opinion by EMA in **September 2018** and expect submitting to US FDA later 2018 or early 2019.

In addition to several issued, pending, and published patents, Apealea has received Orphan Drug Designation, in the US and as such, will be privy to seven (7) years of market exclusivity.

Oasmia’s second product **Doxophos**, a novel formulation of doxorubicin and XR17, was approved in Russia in August 2017.

**Docecal**, a re-formulation of Taxotere®, the worlds best selling taxane, is in late stage pivotal studies.
Technology Platform

- Based on novel Vitamin A derivate - proprietary technology based on in-house research and development
- Validated in clinical and toxicological studies
- Several clear advantages compared to existing therapies
  - Improves solubility and facilitates administration
  - Improves pharmacological profile and bioavailability
  - Allows for dual encapsulation of water-soluble and water-insoluble APIs in one nanoparticle
- Can form micelles by combining water-insoluble and water-soluble substances
- Several active molecules simultaneously (two cytostatics to be given in a single infusion)
- Patent protection until 2036

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**ACTIVE PHARMACEUTICAL INGREDIENT (API)**

- Paclitaxel
  - A water-insoluble cytostatic.
  - Needs to be water-soluble to be injected

**THE XR17 MOLECULE**

- Hydrophilic, polar head
- Hydrophobic, non-polar chain
- API

**MICELLE CONSISTING OF XR17 AND PACLITAXEL**

- Water-soluble

---

**THE XR17 MOLECULE**

- Hydrophilic, polar head
- Hydrophobic, non-polar chain

**Paclitaxel**

- A water-insoluble cytostatic.
- Needs to be water-soluble to be injected
Advantages vs. Existing Therapies

<table>
<thead>
<tr>
<th>CARRIER</th>
<th>PRODUCT (API)</th>
<th>RATIO (CARRIER vs API)</th>
<th>HYPERSENSITIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>XR17</td>
<td>Apealea/Paclical (paclitaxel)</td>
<td>1.3 : 1.0</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Doxophos (doxorubicin)</td>
<td>2.1 : 1.0</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Docecal (docetaxel)</td>
<td>2.25 : 1.0</td>
<td>No</td>
</tr>
<tr>
<td>HSA</td>
<td>Abraxane® (paclitaxel)</td>
<td>9.0 : 1.0</td>
<td>Yes</td>
</tr>
<tr>
<td>Cremophor El</td>
<td>Taxol® (paclitaxel)</td>
<td>88.0 : 1.0</td>
<td>Yes (severe), premedication is standard</td>
</tr>
<tr>
<td>Tween 80</td>
<td>Taxotere® (docetaxel)</td>
<td>26.0 : 1.0</td>
<td>Yes (severe), premedication is standard</td>
</tr>
<tr>
<td>MPEG-DSPE Stealth liposomes</td>
<td>Doxil®/Caelyx® (doxorubicin)</td>
<td>8.0 : 1.0</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Advantages with a lower ratio (carrier vs API)

- Enables higher doses
- Shortens infusion time
- No need for pre-medication
- Lower toxicity
- Lower production cost
Potential API Candidates

- **Proprietary delivery technology is applicable across multiple APIs**
  - Enables proprietary development and partnering opportunities

### WATER INSOLUBLE COMPOUNDS
- **Taxanes**
  - Cabazitaxel
  - Docetaxel
  - Ixabepilone

- **Etoposide**

- **Retinoids**
  - Fenretinide
  - Etretinate
  - Tazarotene – Bexarotene / Adapalene

- **Immunosuppressants**
  - Cyclosporine
  - Sirolimus
  - Tacrolimus
  - Everolimus

### WATER SOLUBLE COMPOUNDS
- **Anthracyclines**
  - Doxorubicin
  - Epirubicin – Idarubicin
  - Daunorubicin – Mitoxantrone

- **Camptothecin Analogues**
  - Topotecan
  - Irinotecan

- **Vinca Alkaloids**
  - Vinblastine
  - Vincristine
  - Vinorelbine

- **Amsacrine**

- **Procarbazine**

### DUAL ENCAPSULATION COMPOUNDS
- **Anthracyclines**
- **Camptothecin Analogues**
- **Vinca Alkaloids**
- **Amsacrine**
- **Procarbazine**

- **Taxanes**
- **Etoposide**
- **Retinoids**
- **Immunosuppressants**
The Global Human Oncology Market

TOTAL ONCOLOGY THERAPEUTICS MARKET

- **Cytostatics**: $115 billion
  - 40% (volume)
- **Generic**: $45 billion
  - 70%
- **Other therapies**: 60%
- **Patented drugs**: 30%

TOTAL CYTOSTATIC MARKET

- Five major products dominate the generic cytostatic market:
  - Paclitaxel (Taxol)
  - Docetaxel (Taxotere®)
  - Abraxane®
  - Doxorubicin (Doxil®/Caelyx®)
  - Carboplatin

- Before becoming generic, Taxol peaked at an annual turnover of ~ $1.6 billion. It is approved for a dozen cancer indications.

- Abraxane, a patented product launched in 2005 by Abraxis, has an annual turnover of ~$1.2 billion (2017).
  - Approved for three cancer indications.
  - Abraxis was acquired by Celgene in 2010 for $2.9 billion

The annual growth rate in cancer drug costs has risen from 3.8 percent in 2011 to 11.5 percent in 2015.

The total oncology therapeutics market is expected to reach $150 billion by 2020.

## Robust Product Pipeline - Human

<table>
<thead>
<tr>
<th>CANDIDATE</th>
<th>INDICATION</th>
<th>PRE-CLINICAL</th>
<th>PHASE I</th>
<th>PHASE II</th>
<th>PHASE III</th>
<th>REG./APPROVAL</th>
<th>RIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Geography</td>
</tr>
<tr>
<td>Apealea / Paclical (paclitaxel)</td>
<td>Ovarian cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Positive CHMP opinion</td>
<td>EU</td>
</tr>
<tr>
<td></td>
<td>Ovarian cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Approved</td>
<td>RUS/KZ</td>
</tr>
<tr>
<td></td>
<td>Ovarian cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>In process</td>
<td>Global</td>
</tr>
<tr>
<td></td>
<td>Metastatic breast cancer</td>
<td>Pharmacokinetic Study vs. Abraxane – finalized Q3 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Global</td>
</tr>
<tr>
<td>Doxophos (doxorubicin)</td>
<td>All Doxorubicin indications</td>
<td></td>
<td>Hybrid</td>
<td></td>
<td>Approved</td>
<td></td>
<td>Russia</td>
</tr>
<tr>
<td></td>
<td>Breast cancer</td>
<td>On-going</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Global (ex Russia)</td>
</tr>
<tr>
<td>Docecal (docetaxel)</td>
<td>Breast cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>On-going</td>
<td>Global</td>
</tr>
<tr>
<td>KB9520</td>
<td>Several</td>
<td>On-going</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Global</td>
</tr>
</tbody>
</table>
# Apealea/Paclical – Competitors

- **Taxol** and **Abraxane** currently generate around **$2 billion** in annual sales combined.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>APEALEA/PACLICAL</th>
<th>TAXOL</th>
<th>ABRAXANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Oasmia (NASDAQ:OASM)</td>
<td>Generic</td>
<td>Celgene Corporation (NASDAQ:CELG)</td>
</tr>
<tr>
<td>Infusion solution</td>
<td>Micellar solution</td>
<td>Emulsion</td>
<td>Colloidal suspension</td>
</tr>
<tr>
<td>Particle size</td>
<td>25 nm</td>
<td>10-22 nm</td>
<td>130 nm</td>
</tr>
<tr>
<td>Excipient</td>
<td>XR17</td>
<td>Cremophor EL</td>
<td>Human albumin</td>
</tr>
<tr>
<td>Dose</td>
<td>260 mg/m²</td>
<td>175 mg/m²</td>
<td>260 mg/m²</td>
</tr>
<tr>
<td>Ratio</td>
<td>1.3 : 1.0</td>
<td>88.0 : 1.0</td>
<td>9.0 : 1.0</td>
</tr>
<tr>
<td>Infusion time</td>
<td>1 hour</td>
<td>3-72 hours</td>
<td>1 hour</td>
</tr>
<tr>
<td>Hypersensitivity</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Possible for Veterinary use</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
# Apealea/Paclical: Phase III Study

---

## Phase III Study serves as the basis for the NDA and MAA Filings

<table>
<thead>
<tr>
<th><strong>Indication:</strong></th>
<th>Epithelial ovarian cancer (orphan designation granted in US)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase:</strong></td>
<td>Phase III finished (collecting complementary Overall survival data)</td>
</tr>
<tr>
<td><strong>Type of study:</strong></td>
<td>Open, randomized, comparative (Taxol)</td>
</tr>
<tr>
<td><strong>Dose:</strong></td>
<td>250mg/m² (Apealea/Paclical); 175mg/m² (Taxol)</td>
</tr>
<tr>
<td><strong>Cycles:</strong></td>
<td>6 (3-week cycles); 1hr per cycle</td>
</tr>
<tr>
<td><strong>Primary end-point:</strong></td>
<td>Non-inferiority between treatments in Progression Free Survival (CA 125 and CT)</td>
</tr>
<tr>
<td><strong>Size of study:</strong></td>
<td>789 patients, 16 countries, 80 clinics</td>
</tr>
<tr>
<td><strong>Final results:</strong></td>
<td>Q4-2014 Progression Free Survival, Q2-2016 Overall survival</td>
</tr>
</tbody>
</table>
| **MA approval:** | Russia: H1 2016  
EMA: Positive opinion received Sep 2018  
FDA: submission scheduled for late 2018 |
| **Comments:**   | Combination therapy with carboplatin |

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10
Preclinical asset: KB9520

- Acquired from Karo Pharma AB in November 2016
- Expected to support our product candidates and diversity our portfolio
- Comprehensive IP protection for substance and application in mesothelioma (USA: to 2034)

**KB9520 is a specific ERβ agonist with high specificity:**
- Insufficient tumor response to platinum is a main contributor to mortality
- Side-effects of cytotoxic drugs prevent a dose-increase that might otherwise have been beneficial
- The added effect of KB9520 could result in adequate therapeutic effect on a lower dose of cytostatic drugs

**KB9520 Enhances Cisplatin Cytotoxicity in Malignant Cells but Reduces its Cytotoxicity in Non-malignant Mesothelial Cells**

*KB9520 has the potential to reduce the toxicities associated with Cisplatin*

**Ready for clinical phase 1 trials**
Veterinary division
## Paccal Vet and Doxophos Vet

<table>
<thead>
<tr>
<th></th>
<th>PACCAL VET</th>
<th>DOXOPHOS VET</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>API:</strong></td>
<td>Paclitaxel</td>
<td>Doxorubicin</td>
</tr>
<tr>
<td><strong>Phase:</strong></td>
<td>New FDA Clinical Phase II planned for conditional approval (MUMS)</td>
<td>Clinical Phase 2 study finalized – results during 2018</td>
</tr>
<tr>
<td><strong>MUMS:</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Indications:</strong></td>
<td>Mammary carcinoma, squamous cell carcinoma, mast cell tumours</td>
<td>Lymphoma</td>
</tr>
<tr>
<td><strong>Companion Animal:</strong></td>
<td>Dog</td>
<td>Dog</td>
</tr>
<tr>
<td><strong>Life Cycle Management:</strong></td>
<td>Cat</td>
<td>Cat</td>
</tr>
</tbody>
</table>

- Oasmia has spun off the Veterinary division, including Paccal Vet and Doxophos Vet, for further development and commercialization efforts.

- By this transaction, AdvaVet will become a separate entity with full focus on the development of the candidates in the veterinary field.
### Animal Health Market – Overview & Trends

- **Oasmia estimate**: total market for **Paccal Vet** in the US, EU and Japan approx one million dogs per annum. Assuming 100,000 dogs treated in year 3 (at a price of $3,500-4,000), this presents an attractive opportunity.

- **200,000 dogs** get’s lymphoma in the US every year. **Doxophos Vet** is the soon to be only approved injectable drug for this indication.

---

#### GENERAL TRENDS

- **Global companion animal drug market**: worth ~$7 billion
- Almost exclusively based on human generic products
- One of four dogs will develop a tumor during its lifetime
  - Significant populations of dogs in both Europe and the US
  - Pet population growth in line with the human population
- 50% of dogs over 10 years old will die of cancer-related problems
  - Aging pet population in both Europe and the US
- ~83M dogs in the US and >5M are diagnosed with cancer each year
  - 50% diagnosed with skin cancer

#### OWNER TRENDS

- Owners now frequently view their pets as family members
  - Growing expectations for companion animal care
- Owners are increasingly educated regarding cancer management
  - Increased willingness to pursue cancer therapy
- Owners are willing to pay out of pocket for therapy
  - Estimated price per treatment of Paccal Vet of $3,500 - $4,000 is tolerated by the broader market

#### VETERINARIAN AND MEDICAL TRENDS

- Growing investments from animal health industry
- Increased numbers of aging animals presented to vet clinics
- Veterinarians become gradually accustomed to treating an aging pet population
  - Increasing access to specialist oncologists and willingness to refer
  - Improving levels of diagnosis by first opinion vets
- Diagnostic advances are likely to positively impact the oncology market
  - Surgeries not expected to represent a significant market
  - Long term drug therapy expected to offer the greatest opportunity

---

Canine Oncology Market

- According to a Morris Animal Foundation survey;

  **The number one concern of American pet owners today is cancer**

- One of four dogs will develop a tumor during its lifetime and 50% of dogs over 10 years old will die of cancer-related problems

- An estimated 13-25 million dogs and cats living with cancer in the US today

- Less than 20% survive longer than 2 years due to unsatisfactory treatments and, as in humans, these treatments severely impact the quality of life

- Only 300 veterinary oncology practitioners compared to 42 000+ general practitioners in the US

### AdvaVet pipeline:

<table>
<thead>
<tr>
<th>ANIMAL HEALTH</th>
<th>CANDIDATE</th>
<th>INDICATION</th>
<th>PRE-CLINICAL</th>
<th>PHASE I</th>
<th>PHASE II</th>
<th>PHASE III</th>
<th>REG STATUS</th>
<th>GEOGRAPHY RIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paccal Vet™</strong> (paclitaxel)*</td>
<td>Mastocytoma</td>
<td></td>
<td></td>
<td></td>
<td>In planning</td>
<td>MUMS (FDA)</td>
<td>AdvaVet Inc. (ex-JAP)</td>
<td></td>
</tr>
<tr>
<td><strong>Doxophos Vet™</strong> (doxorubicin)</td>
<td>Lymphoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MUMS (FDA)</td>
<td>AdvaVet Inc.</td>
<td></td>
</tr>
</tbody>
</table>

*Combination therapy

**Sources:** [https://www.houstontech.org/htc-impact/cavu-biotherapies-inc/](https://www.houstontech.org/htc-impact/cavu-biotherapies-inc/)
Executive summary
## Milestones

### Oasmia is looking forward to several key developments over the next year

### Recently obtained:

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2017</td>
<td>Commercial agreement with Hetero Group regarding Russia and CIS</td>
</tr>
<tr>
<td>August 2017</td>
<td>Doxophos approved in Russia</td>
</tr>
<tr>
<td>December 2017</td>
<td>Paclical approved in Kazakhstan</td>
</tr>
<tr>
<td>February 2018</td>
<td>Last patient treated in two Docecal studies</td>
</tr>
<tr>
<td>May 2018</td>
<td>Veterinary assets transferred to AdvaVet Inc.</td>
</tr>
<tr>
<td>June 2018</td>
<td>Apealea data was presented at ASCO (American Society of Clinical Oncology)</td>
</tr>
<tr>
<td>September 2018</td>
<td>Positive CHMP opinion from EMA regarding Apealea</td>
</tr>
<tr>
<td>October 2018</td>
<td>Positive pivotal data on Doxophos Vet</td>
</tr>
</tbody>
</table>

### Upcoming:

- Next steps for AdvaVet will be presented
- Data from two studies comparing Docecal and Taxotere will be presented
- Pre-submission meeting and submission for market approval of Apealea in USA
- Submission for market approval in a number of different countries
- Presentation of distribution partner for EU and ROW
- Launch Apealea in EU
### Investment Highlights

#### XR17 - a Novel and Broadly Applicable Technology
- Nanotechnology platform used to improve drug (API) solubility; patent protection filed to 2036
- Applicable across wide variety of APIs; can be combined with novel compounds and generic drugs
- Nanoparticle drug delivery systems within oncology are well known (i.e. Abraxane®)
- 70%+ of molecules in the developmental pipeline are believed to be poorly soluble and 40% of already approved drugs are poorly soluble

#### Late-stage Asset with Near-Term Data
- Phase III trials successfully completed comparing Apealea in combination with carboplatin to Taxol
  - Positive risk/benefit profile compared to standard treatment
  - Positive CHMP opinion by EMA obtained in 2018
  - Market Authorisation Approval expected in US 2019/2020
  - Orphan designation in the US for ovarian cancer indication
- Paclical and Doxophos are approved in Russia

#### Highly Attractive Oncology Market
- Oncology market is the largest market in the biopharmaceutical space, estimated to be exceeding $100bn
- First XR17 based product Apealea will compete in the Abraxane and Taxol markets
- Limited commercial infrastructure needed for US launch; Abraxis provides roadmap to success

#### Animal Health Attractive Market
- Paccal Vet and Doxophos Vet has MUMS status by the FDA
- Doxophos Vet has obtained positive pivotal data
- AdvaVet is a stand-alone entity with highly commercial potential
Appendix
Oasmia Pharmaceutical AB
(NASDAQ: OASM)

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Sweden

Corporate Websites:
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info@oasmia.com