This presentation contains forward-looking statements that are subject to risks and uncertainties that could cause actual results to differ materially from those set forth in the forward-looking statements, including risks related to whether any product candidates will be shown to be safe and efficacious in clinical trials and the other risks set forth in the company’s Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and other filings with the Securities and Exchange Commission. Actual results may differ materially from those projected. These forward-looking statements represent the company’s judgment as of the date of this presentation. The company disclaims, however, any intent or obligation to update these forward-looking statements.
Vical at a Glance

- Synergizing vaccine and DNA technologies for new therapies
  - Therapeutic and prophylactic vaccines
  - Vaxfectin® adjuvant
- Multi-stage development pipeline includes:
  - Cytomegalovirus (CMV) franchise
  - Herpes simplex virus type 2 (HSV-2) vaccine
- Partnerships leveraging technologies and resources
- GMP manufacturing facility
- Cash position sufficient into 2016
## Multi-Stage Development Pipeline

<table>
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<tr>
<th>Disease</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Approved</th>
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<td><strong>CMV</strong></td>
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<td>ASP0113 for HCT</td>
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<td>Astellas</td>
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<td>ASP0113 for SOT</td>
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<tr>
<td>CyMVector for CMV prevention</td>
<td>Vaxfectin® Adjuvant</td>
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<td><strong>HSV-2</strong></td>
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<td>HSV-2 Vaccine</td>
<td>Vaxfectin® Adjuvant</td>
<td>Phase 1/2</td>
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<td><strong>Other</strong></td>
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<td>Dengue Vaccine</td>
<td>Vaxfectin® Adjuvant</td>
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<td>U.S. Govt.</td>
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Cytomegalovirus (CMV): A Significant Unmet Medical Need

- Persistent, latent herpes virus
  - Infects >50% of U.S. adults by age 50\(^1\)
- Significant health threat in high risk groups
  - Immunocompromised transplant patients
  - Congenitally-infected infants
- Up to $4B CMV disease burden in U.S.\(^2\)
- No approved vaccine available
  - Protective antigens have been identified

\(^1\) Bate et al., Clinical. Inf. Dis., 2010
\(^2\) Stratton et al., Vaccines for the 21\(^{st}\) Century, Institute of Medicine Report, 2000
CMV Vaccines: Meeting Medical Needs and Expanding Treatment Options

- Antiviral drugs
  - Require frequent testing and regular administration
  - Are toxic and use must be closely monitored
  - Target only circulating virus with no residual protection

- Vaccines
  - Train the immune system to control the virus
  - Control reactivation as it occurs with ongoing protection
  - May provide protection longer after routine monitoring

- Vaccines hold potential to minimize antiviral usage
CMV Vaccines: Addressing Important Patient Populations

- **ASP0113** - Therapeutic vaccine
  - Transplant patients at risk
    - Hematopoietic stem cell transplant (HCT)
    - Solid organ transplant (SOT)
  - Licensed to Astellas

- **CyMVEctin™** - Prophylactic vaccine
  - Congenital CMV infection prevention in adolescent females
    - Target population with similarities to those using Gardasil®
  - Vical program
Astellas Partnership Funds Global Development Program

- Exclusive worldwide license to Astellas in 3Q11
  - $130M total upfront and milestone payments through launch
  - Double-digit royalties on net sales
  - Option to co-promote in United States
- Astellas leading two programs forward
  - Pivotal Phase 3 trial in HCT
  - Phase 2 trial in SOT
- Vical providing support services
  - Clinical, regulatory, process development and manufacturing
  - Full reimbursement of expenses
First-in-Class Vaccine Development Proceeding to Plan

- Phase 2 HCT
  - Safety and viremia endpoints met
  - Published in Lancet Infectious Diseases 2012*
- Phase 3 HCT initiated June 2013
  - First CMV vaccine program to advance to phase 3
  - Adaptive trial design reviewed with regulatory agencies in U.S., EU and Japan
- Phase 2 SOT initiated December 2013
  - 140 planned patient enrollment

*Kharfan-Dabaja et al., Lancet Inf. Dis., 2012
Phase 2 HCT Trial Design

- Randomized, double-blind, placebo-controlled
  - 18-65 yo CMV+ HCT recipients with leukemia or lymphoma
  - 6/6 or 5/6 HLA allele match
  - Stratified by site, donor CMV status, HLA match
  - Randomized 1:1 for active vs. placebo vaccination
- Exploratory: endpoint-defining
- Multicenter: 16 sites in U.S.
- Endpoints:
  - Safety
  - Immunogenicity
  - Viral load
  - CMV therapy

ASP0113 CMV Vaccine
Successful Phase 2 HCT Trial Results

- Vaccine appears well tolerated
  - Favorable safety profile
  - Adverse events similar to placebo

- Vaccine compared with placebo
  - Improved cellular responses to pp65 and gB
  - Decreased occurrence of CMV reactivation
  - Decreased recurrence of CMV reactivation and duration of viremia
  - Delayed time to CMV viremia episodes
Reduction in CMV Viremia

Kharfan-Dabaja et al., Lancet Inf. Dis., 2012
Improved T-cell Responses to CMV pp65

Mean (standard error) T-cell responses to overlapping 15-mer pp65 peptides assessed by IFN-γ ELISPOT; Immunogenicity population, per protocol recipient-only subjects: N=26-33 for ASP0113, N=20-31 for Placebo

Kharfan-Dabaja et al., Lancet Inf. Dis., 2012
Ongoing HCT Pivotal Phase 3 Trial

- Global study initiated June 2013
- 500 CMV seropositive HCT recipients
- 1:1 randomized, double-blind, placebo-controlled adaptive trial design
- First 100 to evaluate mortality as endpoint
- Last 400 to determine efficacy
  - Mortality or composite with mortality and other variables
  - Must be finalized before completion of enrollment
- Enrollment completion expected 4Q15
Clinically Relevant Phase 3 HCT Primary Endpoint

- Primary endpoint: overall mortality
- 20% - 30% lower overall survival in CMV+ vs. CMV-:
  - Attributed to “indirect effects” of CMV
  - CMV antiviral therapy has not impacted survival but a vaccine might be ideal strategy
  - Phase 2 data support CMV vaccine effect on mortality in CMV+
- Endpoint established in discussion with FDA & EMA

*Boeckh and Nichols, Blood, 2004
Ongoing SOT Phase 2 Trial

- Placebo-controlled trial in 140 CMV\(^-\) transplant recipients of kidneys from CMV\(^+\) donors

- Regimen
  - 5 injections of vaccine or placebo over 6 months
  - Viral load monitoring for 6 months after last injection

- Primary endpoint
  - Incidence of CMV viremia

- Secondary endpoints
  - CMV disease
  - CMV-specific antiviral therapy
  - Graft survival
  - Overall survival
CyMVectin™ CMV Vaccine: For Prevention of Congenital Infection

- Last major female vaccine target
  - Target population >30M
  - Females of child-bearing potential (similarities to Gardasil®)
- 30K cases of congenital CMV infection annually
- Leading cause of birth defects in newly infected pregnant women
  - Hearing loss, vision loss, mental retardation, death
- IND allowed for Vaxfectin®-formulated DNA vaccine
  - Partnering opportunity

1. www.census.gov; year 2010 number of females aged 10 – 39, and 50% are CMV seronegative
2. www.cdc.gov/cmv/trends-stats.html
Vaxfectin® Adjuvant

**Vaxfectin® Profile**
- New class of synthetic adjuvant
- Potential for broad applications
  - DNA vaccines
  - Protein-based vaccines
    - Publication with Baxter’s vaccine
- 120 subjects in 4 human trials
  - Influenza H5N1 (x2), H1N1, dengue
  - Well tolerated
- Licensed to BMS and Cyvax in 2012
  - Continuing licensing opportunity
Herpes Simplex Virus Type 2 (HSV-2)

- Herpes virus family
  - Related to HSV-1 (cold sores) and varicella virus (chickenpox)
- Establishes persistent, latent infection in neurons
- Sexually transmitted disease
  - Leading cause of genital ulcers
- >500M infected worldwide\(^1\)
  - >16% infected in U.S.\(^2\)
- 3 licensed drugs aim at suppression; incomplete control
- No licensed vaccine
- Unmet medical need
  - Prevention of recurrence of lesions and transmission

\(^1\)Looker, Bulletin of the World Health Organization, 2008; 15 – 49 year olds
\(^2\)Xu, Morbidity and Mortality Weekly Report, 2010; 14 – 49 year olds
Phase 1/2 Initiated December 2013

Phase 1/2 Design Overview

- Placebo-controlled trial in 156 HSV-2+ adults
  - History of symptomatic genital herpes lesions
- Regimen
  - 2 months pre-vaccination shedding data
  - 3 injections of vaccine over 3 months
  - 2 months post-vaccination shedding data
- Primary endpoints
  - Safety and tolerability in HSV-2+ healthy subjects
  - Comparison of HSV-2 shedding in each subject before and after...
Reduction of Recurrent Lesions in Vaccinated Guinea Pigs

Study 1

Study 2

\[ P < 0.05 \]

\[ P < 0.05 \]

\[ \triangle = \text{DNA Vaccination} \]

- 60 guinea pigs infected with \(10^6\) pfu HSV-2 strain MS on day 0
- Guinea pigs randomized into treatment groups 15 days after primary infections resolved
- Daily monitoring for recurrent lesions and score; viral shedding last 14 days and assayed by PCR
Additional Vaxfectin® POC: Antibody & T-cell Responses to Influenza H5 DNA Vaccine

HI antibody titers ≥40 in the range of protein vaccines (47%-67%)  Durable H5 IFN-γ T Cells

Smith et al., Vaccine 2010
Vical Value Drivers

- Synergizing vaccine and DNA technologies for new therapies
  - Therapeutic and prophylactic vaccines
  - Vaxfectin® adjuvant
- Advanced Astellas partnership
  - Phase 3 ASP0113 CMV vaccine in HCT
  - Phase 2 ASP0113 CMV vaccine in SOT
- CyMVectin™ IND provides opportunity to develop a prophylactic vaccine
- HSV-2 vaccine in phase 1/2
- Cash position sufficient into 2016