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Abaloparatide – best-in-disease bone anabolic product candidate for osteoporosis

- Phase 3 ACTIVE trial Top-Line Fracture Data report December 2014
- Phase 3 ACTIVExtend key secondary endpoint report in June 2015
- NDA/MAA submission 2H2015
- Targeting Global Commercial Launch in 2016

RAD1901 – SERD for metastatic breast cancer

- Phase 1 (Maximum Tolerated Dose) demonstrated rapid suppression of ER+ tissue
- US Phase 1 multicenter, open-label, two-part, dose-escalation study in postmenopausal women with advanced estrogen receptor positive and HER2-negative breast cancer
  - Continuing enrollment and dosing
- Developing additional Phase 1 protocol for EU study initiation in 2H2015
## Radius Pipeline

### High Value: Osteoporosis Program On Track for Global Submission in 2015

<table>
<thead>
<tr>
<th>In-Licensed</th>
<th>Abaloparatide-SC</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Commercialization Rights</th>
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<td></td>
<td>Osteoporosis</td>
<td>Potential Best-in-disease Bone Builder</td>
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<td></td>
<td>Worldwide, except Japan</td>
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<tr>
<td></td>
<td>Subcutaneous</td>
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<th>Phase 3</th>
<th>Commercialization Rights</th>
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<td></td>
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<td>Worldwide</td>
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<tr>
<td></td>
<td>Transdermal Patch</td>
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<th>Phase 2</th>
<th>Phase 3</th>
<th>Commercialization Rights</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Estrogen Receptor + Breast Cancer Oral</td>
<td>Differentiated SERD</td>
<td></td>
<td></td>
<td>Worldwide</td>
</tr>
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<th>RAD1901</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Commercialization Rights</th>
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<tbody>
<tr>
<td></td>
<td>Vasomotor Symptoms Oral</td>
<td>Differentiated SERM</td>
<td></td>
<td></td>
<td>Worldwide</td>
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</table>

<table>
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<th>Radius Discovery</th>
<th>RAD140</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Commercialization Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breast Cancer Oral</td>
<td>SARM</td>
<td></td>
<td></td>
<td>Worldwide</td>
</tr>
</tbody>
</table>
Abaloparatide

- Novel Synthetic Peptide Analog of PTHrP
- Compete with FORTEO® ($1.2 Billion 2013 Sales) Bone Building Category
- Topline Phase 3 results support efficacy based positioning on Fracture Reduction & BMD Increase
- On target for NDA/MAA Submission in 2H2015

Abaloparatide is selective for PTH1R “anabolic” conformation
Trial Design

**BA058-05-003, ACTIVE**
N = 2463

- Placebo
- Abaloparatide 80 mcg Daily SC
- Teriparatide 20 mcg Daily SC

**BA058-05-005, ACTIVExtend**
N = 1139

- Alendronate

**Randomization**

- Months 6, 12, 18, 24

**Topline Data**
- December 2014
- 2Q 2015
## ACTIVE Phase 3 Study
### Baseline Demographics

**ITT Population (N=2463)**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Placebo (N=821)</th>
<th>Abaloparatide (N=824)</th>
<th>Teriparatide (N=818)</th>
<th>Overall (N=2463)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 1 previous fracture</td>
<td>606</td>
<td>604</td>
<td>587</td>
<td>1797</td>
</tr>
<tr>
<td>Number of prior vertebral fractures – N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>134 (16.3)</td>
<td>129 (15.7)</td>
<td>138 (16.9)</td>
<td>401 (16.3)</td>
</tr>
<tr>
<td>≥2</td>
<td>231 (28.1)</td>
<td>225 (27.3)</td>
<td>238 (29.1)</td>
<td>694 (28.2)</td>
</tr>
<tr>
<td>At least 1 vertebral fracture</td>
<td>365 (44.5)</td>
<td>354 (43.0)</td>
<td>379 (46.0)</td>
<td>1095 (44.5)</td>
</tr>
<tr>
<td>At least 1 prior non-vertebral fracture</td>
<td>401 (48.8)</td>
<td>390 (47.3)</td>
<td>361 (44.1)</td>
<td>1152 (46.8)</td>
</tr>
<tr>
<td>BMD T-score - Mean (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spine</td>
<td>-2.9 (0.82)</td>
<td>-2.9 (0.92)</td>
<td>-2.8 (0.93)</td>
<td>-2.9 (8.89)</td>
</tr>
<tr>
<td>Femoral neck</td>
<td>-2.152 (0.6831)</td>
<td>-2.162 (0.6282)</td>
<td>-2.118 (0.6782)</td>
<td>-2.144 (0.6636)</td>
</tr>
<tr>
<td>Total hip</td>
<td>-1.9 (0.78)</td>
<td>-1.9 (0.72)</td>
<td>-1.8 (0.75)</td>
<td>-1.9 (0.75)</td>
</tr>
</tbody>
</table>
Abaloparatide Significantly Greater Early BMD Build At The Spine

Lumbar Spine BMD

% Change from Baseline

Months

Placebo
Abaloparatide
Teriparatide

*p < 0.01 vs TP
Abaloparatide-SC Significantly Reduces the Risk of New Vertebral Fracture – Meets Primary Endpoint

Highly Competitive 18 Month Reduction in Risk

Vertebral Fracture (mITT Population)

Excluding patients with worsening vertebral fracture per FDA’s direction

* Vs. PBO, p<0.0001
Abaloparatide Significantly Greater BMD Build – Early & Sustained

**Total Hip BMD**

- Placebo
- Abaloparatide
- Teriparatide

**Femoral Neck BMD**

- Placebo
- Abaloparatide
- Teriparatide

% Change from Baseline vs Months

- # p < 0.0001 vs TP
- ^ p = 0.0003 vs TP
- @ p = 0.0016 vs TP
Abaloparatide-SC Significantly Reduces the Risk of Non-Vertebral Fracture – Meets Key Secondary Endpoint

Highly Competitive Reduction in Hazard Ratio

K-M Estimated Incidence Rate at 19 Months:
Non-Vertebral Fracture*** (ITT Population)

** * ABL vs. PBO, p=0.0489
** FOR vs. PBO, p=N/S

*** excludes fingers, toes, sternum, patella, skull and facial bones
Efficacy: Time To First Non-Vertebral Fracture*

* excludes fingers, toes, sternum, patella, skull and facial bones
Post-Hoc Analysis BMD & Wrist Fracture

Ultra-Distal Radius BMD

- Placebo
- Abaloparatide
- Teriparatide

% Change from Baseline

* p < 0.001 vs placebo
# p = 0.0013 vs TP

Wrist Fracture (mITT Population)
K-M Estimated Incidence Rate at 19 months

-72%*
## Most Frequently Reported Adverse Events

### Safety Population (N=2460)

<table>
<thead>
<tr>
<th>Event</th>
<th>Placebo (N=820)</th>
<th>Abaloparatide-SC (N=822)</th>
<th>Teriparatide (N=818)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back Pain</td>
<td>10%</td>
<td>8.6%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Arthralgia</td>
<td>9.8%</td>
<td>8.5%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Upper respiratory tract infection</td>
<td>8.9%</td>
<td>9.0%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Hypercalciuria</td>
<td>8.9%</td>
<td>10.9%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Dizziness</td>
<td>6.1%</td>
<td>10.0%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

## Incidence of Hypercalcemia

<table>
<thead>
<tr>
<th>Events</th>
<th>Placebo (N=820)</th>
<th>Abaloparatide-SC (N=822)</th>
<th>Teriparatide (N=818)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypercalcemia event rate</td>
<td>0.37%</td>
<td>3.41%*</td>
<td>6.36%*</td>
</tr>
<tr>
<td>(primary analysis based on albumin corrected serum calcium)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* ABL vs. TPTD, p=0.0055
Expected Timeline to Abaloparatide-SC Approval

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Completed</strong></td>
<td>Phase 3 – 18 month study</td>
<td></td>
</tr>
<tr>
<td><strong>Completed</strong></td>
<td>6 month extension study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top Line Results June 2015</td>
<td>FDA / EMA review period</td>
</tr>
<tr>
<td></td>
<td>Commercial launch preparation</td>
<td>2016 approval</td>
</tr>
</tbody>
</table>
Transdermal (TD) Patch Program

Abaloparatide Transdermal Patch reported new data in December 2014

- Eliminates the need for daily injection
- Comparability development path to bridge to subcutaneous program
- Ideal for 50,000 Osteoporosis treating physicians who rarely prescribe injectables
- Jan 2014 Reported Human Phase 2 POC results; Optimization studies ongoing
High Prescribers Are Driving the Growth of The Injectable Market

2013 Global Osteoporosis Drug Sales – Actual ($6BN)

- Injectable: $2.0
- Other Therapies: $4.0

2016 Global Osteoporosis Drug Sales - Forecast ($6BN)

- Injectable: $2.8
- Other Therapies: $3.2

Injectable therapies (Forteo & Prolia) are expected to grow by 12% per year in a flat market

Osteoporosis Injectable Market is Comprised of High Prescribers of Forteo/Prolia

Launch Target: High Prescribing Specialists
- ~9,600 prescribers (30%) account for 80% of US Forteo & Prolia Claims

Peak Sales Expansion: Primary Care
- ~50,400 prescribers account for 50% of US oral claims and the bottom 20% of Forteo/Prolia claims

Source: IMS claims data. Sales rep calculations assume 6 calls per day for 220 working days per year.
Radius Will Commercialize Abaloparatide SC In The U.S. targeting 2016 Launch to Specialists

- Engage Partner for Global Launch
- Launch Subcutaneous to Injectable segment,
- Expand into Incident Osteoporotic Fractures

Radius to commercialize with a targeted sales force

High Injectable Prescribers

Oral Agent Prescribers

Expand into Incident Osteoporotic Fractures

Market Leadership
RAD1901
A Novel Tissue Selective Estrogen Receptor Degrader
SERD Inhibition of Tumor Proliferation

RAD1901 Degrades ERα and Inhibits Breast Cancer Cell Proliferation

- IC50 = 1.6nM

RAD1901 Inhibits Estrogen-Dep. Tumor Growth

Vehicle
- Mean +955%

Tamoxifen
- Mean -5%

Fulvestrant
- Mean +15%

RAD1901 (60 mg/kg)
- Mean -51%

RAD1901 (90 mg/kg)
- Mean -67%

RAD1901 (120 mg/kg)
- Mean -64%

Presented at the San Antonio Breast Cancer Symposium, 11th Dec 2014
RAD1901 Demonstrates Efficacy in an Intracranial Xenograft Model

*Manscript submitted*
RAD1901 Demonstrates Efficacy in ESR1 Mutant (Y537S) PDX Model

**ESR1 mutations Associated with Endocrine Therapy Resistance**

<table>
<thead>
<tr>
<th>Mutation</th>
<th>Location</th>
<th>Frequency in ER+ MBC (post ET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S463P</td>
<td>LBD</td>
<td>5%</td>
</tr>
<tr>
<td>V534E</td>
<td>LBD</td>
<td>3%</td>
</tr>
<tr>
<td>P535H</td>
<td>LBD</td>
<td>3%</td>
</tr>
<tr>
<td>L536Q</td>
<td>LBD</td>
<td>3%</td>
</tr>
<tr>
<td>L536R</td>
<td>LBD</td>
<td>3%</td>
</tr>
<tr>
<td>Y537C</td>
<td>LBD</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Y537S</strong></td>
<td>LBD</td>
<td><strong>28%</strong></td>
</tr>
<tr>
<td>Y537N</td>
<td>LBD</td>
<td>13%</td>
</tr>
<tr>
<td>D538G</td>
<td>LBD</td>
<td>36%</td>
</tr>
</tbody>
</table>


**Preliminary PDX Data – Study Ongoing**

![Graph showing tumor volume over time for different treatments](image-url)
Clinical Data
18F-Estradiol-Positron Emission Tomography

Clinical Nuclear Imaging Demonstrates Target Engagement and Signal Suppression With RAD1901

Baseline

Post treatment

Uterus

Pituitary

<table>
<thead>
<tr>
<th>Dose</th>
<th>Uterus SUV % Change</th>
<th>Bone SUV Change</th>
<th>Muscle SUV Change</th>
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<tbody>
<tr>
<td>500 mg</td>
<td>-86%</td>
<td>1%</td>
<td>13%</td>
</tr>
<tr>
<td>200 mg</td>
<td>-85%</td>
<td>16%</td>
<td>0%</td>
</tr>
</tbody>
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Marked suppression of FES-PET signal in two ER rich tissues after 6-days of RAD1901 dosing

Presented at the San Antonio Breast Cancer Symposium, 11th Dec 2014
Phase 1 in Breast Cancer – Currently Recruiting

A Phase 1, Multicenter, Open-Label, Two-Part, Dose-escalation Study of RAD1901 in Postmenopausal Women with Estrogen Receptor Positive and HER2-Negative Breast Cancer

– PM women with ER+/HER- with locally advanced, inoperable and/or metastatic breast cancer
– Determine the MTD and/or the RP2D, with DLT incidence assessed during 28-day cycle
– Safety, tolerability, PK will be assessed, and also a preliminary evaluation of tumor response
– 3+3 study design for dose escalation phase
– Safety expansion cohort based on RP2D
– 4-6 clinical sites planned
– FDA accepted IND in December
– Currently enrolling
2015 Upcoming Milestones

- Report top-line 6 month ACTIVEExtend and integrated 24 month results from ACTIVE/ACTIVEExtend
  - June 2015 Topline Report
- Report progress on RAD1901 US Phase 1 study in mBC (1H 2015)
  - ASCO Trials in Progress Chicago May 29- June 2
- Initiate clinical evaluation of optimized Abaloparatide-TD patch (2H 2015)
- Initiate EU Phase 1 clinical studies of RAD1901 in mBC (2H 2015)
- Submit NDA / MAA for Abaloparatide-SC (2H 2015)

Commercial launch of Abaloparatide-SC (expected 2016)