

**Kindred Biosciences, Inc.**

KIN - BUY - Osteoarthritis Deal Underscores Development Stage Animal Health Companies are Driving Innovation

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**FLASH NOTE**

SECTOR: Specialty Pharmaceuticals

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**We believe the long term growth prospects of Companion Animal health companies remain underappreciated, and this supports our BUY rating for KIN (BUY, \$18.82).** In our in-depth deep dive on the animal health market size ([In-Depth Analysis Underscores Size of Animal Health Market Underappreciated; Buy KIN & ZTS](#)), we note that new product innovation will drive Companion Animal drug sales. We believe there are multiple growth opportunities in the Companion Animal market that are not being factored into consensus expectations including: (a) Unmet needs in companion animal health (e.g., oncology, pain, species-specific drugs, etc.), and (b) Under-treated diseases in pets (e.g., cognitive disorders, metabolic diseases, anxiety, congenital conditions, obesity).

**Aratana's (PETX, NC, \$14.22) collaboration with Vet-Stem (private) for a stem-cell based therapy for dogs with osteoarthritis demonstrates that development stage Animal Health companies are driving innovation in the industry.** Aratana entered into an agreement with Vet-Stem for exclusive rights to the first "off the shelf" regenerative cell therapy for the treatment of osteoarthritis in dogs based on Vet-Stem's allogeneic stem cell therapy technology. The agreement grants PETX exclusive rights to commercialize the product in the U.S. for the treatment of osteoarthritis in dogs. Vet-Stem will be responsible for the ongoing development of the product and PETX will pay for development, up to \$4.5MM of development and regulatory milestones as well as tiered royalties on product sales. Lastly, PETX will also have the exclusive right to negotiate into EU before year end 2014. PETX and Vet-Stem expect to initiate a blinded, multi-center, placebo-controlled, dose confirmation study later this month. Both companies do not expect U.S. FDA approval before 2016.

**Novel allogeneic stem cell therapy addresses unmet need in canine osteoarthritis and could potentially grow the market opportunity.** There are 85MM dogs in the U.S. According to PETX, osteoarthritis impacts ~10% to 20% of dogs and only 4.4MM actually get treatment. Allogeneic stem cell therapy offers pets a product based therapy versus current therapies available (device, surgery). The product is designed to reduce the pain of osteoarthritis and could have the potential impact on the progression of the disease via tissue regeneration. This product is focused on severe population of pets (further down the course of disease). If approved, Vet-Stem's product would be a lower cost alternative that is meaningfully effective and can lead to a higher market penetration and potentially overall market growth as more pets get treated.

**Vet-Stem's allogeneic stem cell therapy avoids the necessity for pets to undergo surgery in order to harvest tissue as is the case with other cell therapy treatments.** Vet-Stem is a private company focused on regenerative medicine for pets. Vet-Stem has developed a technology platform for producing allogeneic adipose derived stem cell therapies, where a single donor sample can be used to generate a large bank of doses that can be stored and used to treat multiple patients.

**Potential Catalysts.** 1) Data from pivotal studies for CereKin (August '14), AtoKin, SentiKin released in '14; 2) Approvals for CereKin, AtoKin, SentiKin in '15+; 3) Additional pipeline advancements and approvals; 4) Partnerships & business development.

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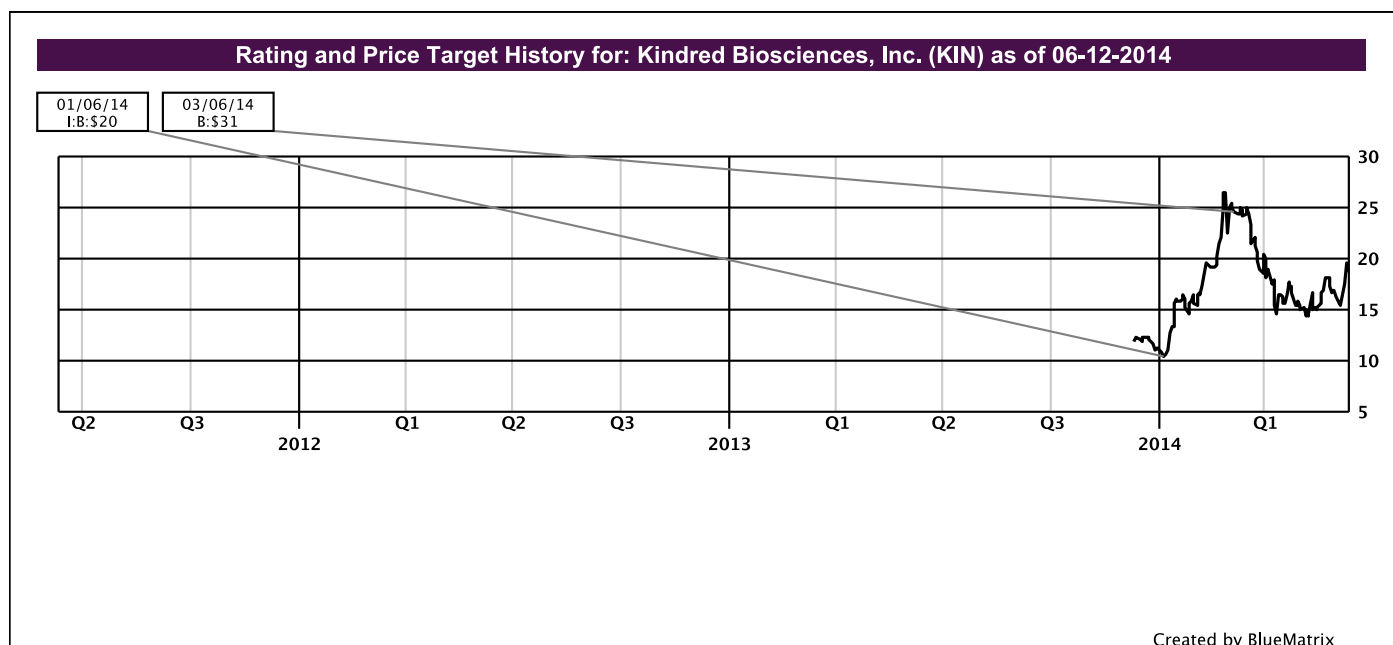
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