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**POSITIVE FINDINGS FROM EXCELLARATE™ PHASE 1/2 CLINICAL STUDY  
PUBLISHED IN JOURNAL OF WOUND REPAIR AND REGENERATION**

SAN DIEGO, CA – October 15, 2009 – Cardium Therapeutics (NYSE Amex: CXM) today announced the publication of positive findings from the open label multi-center Phase 1/2 clinical study of Excellerate™ (GAM501, Ad5PDGF-B / 2.6% collagen), its product candidate for the potential treatment of non-healing diabetic foot ulcers. The clinical findings, entitled *Treatment of Nonhealing Diabetic Foot Ulcers with a Platelet-Derived Growth Factor Gene-Activated Matrix (GAM501): Results of a Phase 1/2 trial* (Mulder, et al), are to be published in the October 2009 issue of *Wound Repair and Regeneration*, a peer-reviewed medical journal of the Wound Healing Society. The publication is now available online at the following website: <http://www3.interscience.wiley.com/journal/122648469/abstract>.

As reported in the article, the primary objectives of the Phase 1/2 clinical study were to evaluate the safety, maximum-tolerated dose, and preliminary biological activity of the Excellerate product candidate. The open label study evaluated fifteen patients with chronic, non-healing ulcers who were treated with local application at the wound site of either a single administration of the Excellerate product candidate at one of three dose levels, or up to four administrations of Excellerate at one-week intervals.

The principal findings of the Phase 1/2 clinical study as reported in the article include the following:

- Excellerate appeared to be both safe and well tolerated following administration in patients with non-healing diabetic ulcers, with no evidence of systemic or local toxicity at any dose level (therefore no maximum-tolerated dose was reached);
- Ad5PDGF-B and the collagen matrix of Excellerate, as well as the encoded PDGF-B protein, appeared to remain localized within the wound site (as evidenced by an absence of circulating adenoviral DNA, and the absence of any detectable antibodies to either the encoded PDGF-B protein or the collagen in the blood of patients);
- Complete wound closure was observed by 14 weeks in ten of the fifteen patients (67%), seven of whom had received only a single application of the Excellerate product candidate; and

- Excellerate appeared to be associated with early rapid healing responses (around half of the patients achieved a 50-99% reduction in wound size by week 2).

The Excellerate product candidate (referred to as GAM501 in the article) is initially being developed to facilitate wound closure in non-healing diabetic foot ulcers. Excellerate is a collagen-based topical gel employing Cardium's Gene Activated Matrix™ technology to locally stimulate the release of platelet-derived growth factor-B protein (PDGF-B) and provide a matrix for cell migration, which are believed to be important keys in the human body's wound healing process. The sustained localized production of PDGF-B by a patient's own cells directly in the wound site is believed to stimulate angiogenesis and granulation tissue formation through the recruitment and proliferation of cells such as monocytes, fibroblasts and endothelial cells. Cardium's customized collagen matrix (Excellagen™), which forms an integral part of the Excellerate product, is believed to support the process of wound healing by promoting retention of Ad5PDGF-B and the encoded PDGF-B protein within the wound site, and also serves as a scaffold to support the infiltration and proliferation of wound repair cells. These activities are considered to be important for the effective stimulation of a variety of wound healing processes.

While other advanced care products for treating diabetic wounds are available, the article also observed that several aspects of those approaches can limit their use and additional new therapies are needed. As noted, "Living skin equivalents (e.g., Apligraf® and Dermagraft®) are effective in accelerating ulcer repair; however, multiple weekly applications are typically required. The usage of these products is limited due to short shelf life (5–10 days) and expense. Becaplermin (Regranex®), platelet-derived growth factor-B homodimer [PDGF-BB], Systagenix Wound Management, Gargrave, UK) is the only growth factor protein approved for use in diabetic ulcers. However, the healing incidence is only 15% greater than placebo-treated ulcers. Problems with maintenance of the protein at the ulcer site (daily application required), and for a sufficient period of time (weeks to months), have been identified as factors contributing to this low rate of efficacy [citations omitted]."

"The publication of the positive safety and open label efficacy findings of our Matrix Phase 1/2 clinical study in the peer-reviewed *Wound Repair and Regeneration* journal provides an opportunity for the medical community to review the significant advancements that we are making in the fields of DNA-based gene therapy and wound healing. The findings from this Phase 1/2 clinical study are consistent with and further supported by results from our much larger blinded Phase 2b clinical study as reported yesterday, which suggest that both Excellerate and its component collagen matrix known as Excellagen appear to promote wound healing at rates substantially higher than with standard of care and may have important roles as new therapeutic tools for the potential treatment of soft tissue wounds such as diabetic ulcers," reported Christopher J. Reinhard, Cardium's Chairman and Chief Executive Officer.

"Based on collective data obtained in the Phase 1/2 and Phase 2b clinical studies, and approvals related to the use of collagen in a number of clinical settings, the Company plans to advance Excellagen along an abbreviated FDA 510(k) pathway as a medical device – and to advance Excellerate to a Phase 3 clinical development program for the potential treatment of diabetic lower extremity ulcers, which are the leading cause

of amputations and associated morbidity and mortality in the U.S. and other industrialized countries,” Mr. Reinhard added.

### **Findings of the Phase 1/2 Excellerate Clinical Study**

The Phase 1/2 study was a multi-center, open label, dose-escalation study. Fifteen patients with previously non-healing foot ulcers were enrolled and received either a single dose of Excellerate or up to four administrations of Excellerate at one-week intervals and were then evaluated for up to seven months. In addition to the application of Excellerate, patients also followed a standard of care treatment regimen for the entire treatment and evaluation period. Standard of care consisted of surgical debridement, dressing changes and use of an off-loading device. The mean size of ulcers at treatment was  $3.0 \pm 1.8 \text{ cm}^2$  (range 1.17 – 7.2  $\text{cm}^2$ ), and these ulcers were considered chronic, having remained unhealed prior to treatment for a mean of 76 weeks (range 8 – 284 weeks).

In this study, 10 of the 15 patients (67%) achieved ulcer closure during the study period with two additional patients achieving at least a 50-99% decrease in ulcer area. The onset of response was rapid with 7 of 15 (47%) patients achieving a 50-99% decrease in ulcer area by week 2, and 9 of 15 (60%) patients achieving a 50-99% decrease in ulcer area by week 6. Overall, most of the patients (93%) had a positive response, as assessed by decreases in ulcer size.

The chronic non-healing nature of these diabetic ulcers prior to treatment and comparison of the healing response for Excellerate-treated ulcers with the previously published healing incidence in standard of care trials of 24% at 12 weeks, support a potential biological effect of Excellerate in promoting wound healing.

The researchers concluded that “the potential benefits from a single (or double) administration of GAM501 [Excellerate] could one day offer medical practitioners and their diabetic patients an important new treatment option having a higher degree of therapeutic efficacy than SOC (standard of care), and a simplified treatment regimen compared with other advanced therapies that require strict patient compliance for prolonged periods of time. Such a new treatment option could thereby provide a better daily quality of life and perhaps reduce amputations for patients suffering from chronic diabetic foot ulcers.”

The Excellerate clinical development program is focused on developing new and innovative ways to enhance the treatment of diabetic foot ulcers, which affect about 15% of the almost 24 million diabetic patients in the United States, or 3.6 million people. Each year, over 800,000 patients in the U.S. develop diabetic foot ulcers. Of these patients, 6 percent will be hospitalized due to infection or other ulcer-related complications. The cost of diabetic ulcers to the U.S. healthcare system is approximately \$5 billion per year with treatment and subsequent lower limb amputations adding an additional \$1 billion per year. Diabetes is the leading cause of non-traumatic lower extremity amputations and approximately 14 to 24 percent of patients with diabetes who develop foot ulcers eventually have an amputation. The three year survival rate after amputation is only 50 percent.

### **Gene Activated Matrix Technology Platform**

Cardium's proprietary Gene Activated Matrix™ technology platform is designed to provide a therapeutic level of protein synthesis at a specific site in the body and can be used in soft tissue such as skin, ligament, tendons and cartilage, as well as in hard tissue such as bone. The technology is distinctive in that it is immobilized gene delivery that allows for gene uptake restricted to the application site. The Gene Activated Matrix comprises any biocompatible matrix containing a gene or DNA vector encoding for a growth factor or any therapeutic protein. The technology allows for a broad spectrum of formulations and the use of any biocompatible matrix, natural or synthetic, which would include, but not be limited to, collagen, de-mineralized bone, allograft and other synthetic graft materials.

The Company's studies have shown that proliferative cells migrate into the Gene Activated Matrix and then take up the immobilized gene resulting in localized and sustained production of small but physiologically active quantities of growth factor proteins or other therapeutic proteins based on the protein-producing DNA of choice. Compared with current protein therapy, which may be limited due to the inherently short half-life of proteins, the Company believes that the localized and sustained production of therapeutically significant concentrations of DNA-driven proteins at the delivery site can significantly enhance the stimulation of localized therapeutic processes such as tissue repair.

### **About Cardium**

Cardium is focused on the acquisition and strategic development of new and innovative bio-medical product opportunities and businesses that have the potential to address significant unmet medical needs and definable pathways to commercialization, partnering and other economic monetizations. Cardium's investment portfolio includes the Tissue Repair Company and Cardium Biologics, medical technology companies primarily focused on the development of innovative therapeutic products for wound healing, bone repair, and cardiovascular indications. In July 2009, Cardium completed the sale of its InnerCool Therapies medical device business to Royal Philips Electronics, the first asset monetization from the Company's biomedical investment portfolio. News from Cardium is located at [www.cardiumthx.com](http://www.cardiumthx.com).

### **Forward-Looking Statements**

Except for statements of historical fact, the matters discussed in this press release are forward looking and reflect numerous assumptions and involve a variety of risks and uncertainties, many of which are beyond our control and may cause actual results to differ materially from stated expectations. For example, there can be no assurance that Excellerate or our other candidates will prove to be sufficiently safe and effective, or that results or trends observed in one clinical study or procedure will be reproduced in subsequent studies or procedures, or that clinical studies even if successful will lead to product advancement or partnering; that the Excellerate product candidate offers the potential for simpler or more cost-effective treatment for physicians and patients than other FDA-approved products that currently are or will be on the market; that the Matrix clinical study program or other human clinical trials can be conducted and completed in an efficient and successful manner; that we can develop a DNA-based orthobiologics product portfolio; that our products or product candidates will not be unfavorably compared to competitive products that may be regarded as safer, more effective, easier to use or less expensive; that FDA or other regulatory clearances

or other certifications, or other commercialization efforts will be successful or will effectively enhance our businesses or their market value; that our products or product candidates will prove to be sufficiently safe and effective after introduction into a broader patient population; or that third parties on whom we depend will perform as anticipated.

Actual results may also differ substantially from those described in or contemplated by this press release due to risks and uncertainties that exist in our operations and business environment, including, without limitation, risks and uncertainties that are inherent in the development of complex biologics and in the conduct of human clinical trials, including the timing, costs and outcomes of such trials, our ability to obtain necessary funding, regulatory approvals and expected qualifications, our dependence upon proprietary technology, our history of operating losses and accumulated deficits, our reliance on collaborative relationships and critical personnel, and current and future competition, as well as other risks described from time to time in filings we make with the Securities and Exchange Commission. We undertake no obligation to release publicly the results of any revisions to these forward-looking statements to reflect events or circumstances arising after the date hereof.

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