



Press / Investor Contact:

Bonnie Ortega
Director, Investor/Public Relations
Cardium Therapeutics, Inc.
Tel: (858) 436-1018
Email: InvestorRelations@cardiumthx.com

**SCIENTIFIC JOURNAL *GENE THERAPY* REPORTS THAT CARDIUM'S
GENE ACTIVATED MATRIX TECHNOLOGY
ACCELERATES PERIODONTAL TISSUE REGENERATION**

SAN DIEGO, Calif. – September 14, 2009 – Cardium Therapeutics (NYSE Amex: CXM) today reported on preclinical findings published in the scientific journal, *Gene Therapy*, demonstrating that Cardium's Gene Activated Matrix™ or GAM™ technology accelerates periodontal tissue regeneration of oral implant-supporting wounds. The *PDGF-B gene therapy accelerates bone engineering and oral implant osseointegration* study (Chang, et al., *Gene Therapy*; 10 September 2009; doi: 10.1038/gt.2009.117) conducted by researchers at the University of Michigan is available online at nature.com/doi/10.1038/gt.2009.117, and reports on the use of AdPDGF-B/collagen (the key component of the Company's Excellerate™ product candidate) to promote oral implant osseointegration. The study's findings demonstrate that AdPDGF-B/collagen is safe, accelerates and enhances oral implant osseointegration, and leads to significantly higher bone-implant contact, defect fill, bone area and tissue mineral density than placebo.

Oral implants are widely accepted in dental medicine as a reconstructive treatment for tooth replacement due to disease, injury or congenital defects. Growth factor application has been advocated to improve osteogenesis and osseointegration, however, as a result of the transient action and short half-life of proteins, the sustained bioavailability associated with growth factor gene delivery has been proposed as an effective alternative for the delivery of growth factor proteins. The preclinical study demonstrated that the initial response to a bolus administration of rhPDGF-BB protein was strong, but the short half-life of the protein results in rapid degradation with a decrease in the mitogenic response. In contrast, PDGF-B gene delivery using Cardium's Gene Activated Matrix technology resulted in sustained protein expression that lasted for approximately 14 days. The benefits of this prolonged availability are expected to be even more evident in planned large animal critical size defect models. The study also reported that there was no dissemination of the AdPDGF-B vector away from the treatment site, and no alteration of hematological and clinical chemistry parameters associated with the AdPDGF-B/collagen treatments. The authors conclude that, "This approach shows the ability of Ad-PDGF-B to accelerate oral implant osseointegration. The data support the concept that Ad-PDGF-B gene delivery may be an effective and safe mode of therapy comparable with PDGF-BB application to promote dental implant osseointegration and oral bone repair."

"The results of this preclinical study demonstrate the potential benefits of our GAM technology for bone engineering and oral implant osseointegration and further support our decision to expand the focus of the Company's regenerative medicine technologies to include

orthobiologics,” reported Christopher J. Reinhard, Chairman and Chief Executive Officer of Cardium Therapeutics and Tissue Repair Company. “Cardium’s Gene Activated Matrix technology and protein-producing gene portfolio are important building blocks as we expand our product development programs from wound healing biologics into the emerging new high growth market segment of orthobiologics.”

Orthobiologics Product Platform

The Company recently announced plans to develop a DNA-based orthobiologics product portfolio based on research and development by Cardium’s Tissue Repair Company that will initially focus on non-union bone fractures for medically-compromised patients, and spinal fusion for patients with degenerative disc disease. Orthobiologics is a rapidly growing segment of the orthopedics market and represents biologically-active products designed to enhance musculo-skeletal repair and regeneration.

Following on results observed with Tissue Repair’s Excellerate™ product candidate, which is targeted to the repair of soft tissues (particularly diabetic ulcers), the Company’s orthobiologics initiative will build on and extend the underlying technology that has been developed by the Tissue Repair Company to hard tissue applications such as bone, including: (1) proprietary Gene Activated Matrix™ or GAM™ delivery and ligand targeting; (2) use of GAM to locally produce proteins capable of stimulating bone and other tissue growth; and (3) a substantial body of pre-clinical research and development supporting the use of GAM to deliver bone growth factors. Cardium believes that future DNA-based products offer the potential to provide patients and healthcare systems with more cost-effective alternatives to current and planned protein-based therapeutics.

Cardium’s initial orthobiologics focus will be on the development of Osteorate™, a DNA-based non-surgical injectable bone graft gel to repair bone fractures and regenerate tissue in certain medically-compromised patient populations. Osteorate will be based on a reformulation of Cardium’s DNA-based Excellerate wound healing product candidate, now in late-stage clinical development, which is designed to stimulate localized and sustained cellular production of platelet-derived growth factor-B (PDGF-B) protein as a treatment for patients with non-healing diabetic foot ulcers. The Gene Activated Matrix technology allows for a broad spectrum of formulations which would include, but not be limited to, collagen, demineralized bone matrices, allograft and synthetic graft materials. Based on recently announced formulation advances, Osteorate would be developed as a pre-mixed ready-to-use-syringe that would be stored in a physician’s office at a temperature of about 4 degrees Celsius. PDGF-B protein is a well known bone growth mediator and is already used in several FDA approved products and medical devices for soft and hard tissue healing.

The Gene Activated Matrix technology platform is expected to be further expanded with the use of other genes capable of promoting bone repair, in order to biologically enhance surgical spinal fusion procedures in patients with degenerative disc disease. Exemplary genes include a chimeric variant of BMP-4 (chBMP4), which offers the potential for the localized and sustained cellular expression and release of Bone Morphogenetic Protein-4 (BMP-4) to potentially enhance spinal fusions. A pre-clinical research study, conducted by Cardium’s Tissue Repair Company, entitled *Bone Induction by AdBMP-2/Collagen Implants*, (Schreiber, et al., *J Bone Joint Surg*, 2005, May; 87(5): 1059-1068) demonstrated that local delivery of an adenovector encoding BMP-2 (AdBMP-2) in a collagen matrix rapidly induced new bone formation compared to controls. The chBMP4 variant is believed to be even more effective for orthobiologics applications such as bone repair.

Cardium plans to explore potential collaborations with other companies in the orthopedics space, including orthopedic device manufacturers and others having an interest in developing novel approaches designed to improve the healing and regeneration of bone following traumatic bone injuries, which are affecting a substantial and increasing proportion of the human population as patients survive to older ages along with general improvements in medicine and healthcare.

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 localized control of gene uptake. The Gene Activated Matrix comprises any biocompatible matrix containing a gene or DNA vector encoding for a growth factor or any therapeutic protein. The Gene Activated Matrix 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, demineralized 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 micro 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 inherent short half-life of a protein once administered into the human body, the Company believes that the localized and sustained production of micro-quantities of DNA-driven proteins at the injury site within a Gene Activated Matrix offers the opportunity to significantly enhance the availability of therapeutic proteins to the cells performing tissue repair and lower the overall level of protein required.

Cardium's Orthobiologics Research

Significant pre-clinical research has been conducted and published by researchers and collaborators at Cardium's Tissue Repair Company and the University of Michigan demonstrating the safety and benefits of adenovector-mediated platelet-derived growth factor gene expression in the areas of periodontal tissue engineering and bone-grafting applications. Published data for periodontal tissue engineering include: (1) *Platelet-Derived Growth Factor Gene Delivery Stimulates ex Vivo Gingival Repair*, (Anusaksathien, et al., *Tissue Eng.* 2003 August; 9(4): 745-756); (2) *Engineering of Tooth-Supporting Structures by Delivery of PDGF Gene Therapy Vectors*, (Jin, et al., *Mol Ther*, 2004 April; 9(4): 519-526); (3) *Platelet-derived Growth Factor-B Gene Delivery Sustains Gingival Fibroblast Signal Transduction*, (Lin, et al., *J Periodont Res*, 2008; 43: 440-449); and (4) *Adenovirus Encoding Human Platelet-Derived Growth Factor-B Delivered to Alveolar Bone Defects Exhibits Safety and Biodistribution Profiles Favorable for Clinical Use*, (Chang, et al., *Human Gene Therapy*, 2009 May; 20: 486-496). This body of research by the Tissue Repair Company and its collaborators demonstrates the potential safety and benefits of PDGF gene therapy for periodontal tissue repair and regeneration. In addition, a pre-clinical research study, conducted by Cardium's Tissue Repair Company, entitled *Bone Induction by AdBMP-2/Collagen Implants*, (Schreiber, et al., *J Bone Joint Surg*, 2005, May; 87(5): 1059-1068) demonstrated that local delivery of an adenovector encoding BMP-2 (AdBMP-2) in a collagen matrix rapidly induced new bone formation compared to controls.

Market Opportunity of Dental Bone Graft Substitutes

A new and rapidly growing market in orthopedics is orthobiologics. According to one industry research report, orthobiologics is the fastest growing segment in orthopedics with an

estimated growth rate of 17% and total worldwide sales of \$4.2 billion in 2007. The global market for such products is projected to almost double from 2007 levels by 2012.

Worldwide dental implants are poised to achieve significant growth as patients become aware of the health benefits achieved from having viable teeth. With an estimated 69% of adults ages 35 to 44 having lost at least one permanent tooth to an accident, gum disease, a failed root canal, or tooth decay, dental implants represent a large market. By age 74, 26% of adults have lost all of their permanent teeth and this population is growing as the number of Americans over 55 is expected to increase by 60% in the next 20 years.

In 2006, the combined U.S. market for dental bone graft substitutes and other biomaterials was valued at slightly over \$150 million. This market includes bone graft substitutes, tissue engineering products, and dental membranes. The market is expected to rapidly grow as the number of bone graft procedures associated with dental implants increases. Market is expected to increase to over \$415 million by 2013.

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 tissue repair and cardiovascular indications. In May 2009, Cardium announced completion of the enrollment for the Matrix Phase 2b clinical study to evaluate the Excellerate product candidate as a treatment for patients with non-healing diabetic ulcers. News from Cardium is located at 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 an orthobiologics product initiative can be initiated and successfully developed, that results or trends observed in pre-clinical or clinical studies or procedures will be reproduced in subsequent studies or procedures, that the MATRIX study or other human clinical trials can be conducted and completed in an efficient and successful manner, that clinical studies even if successful will lead to product advancement or partnering, that product formulation enhancements will be successful or will effectively simplify or expand the use of product candidates or technologies, that the GAM technology can be successfully broadened or applied to additional wound healing or tissue repair opportunities, that Excellerate, Osteorate or our other product candidates will prove to be sufficiently safe and effective, 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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