



ASX and Media release

## **Circadian files IND with FDA for VGX-100 for the treatment of cancer patients with solid tumors**

**Melbourne, Australia September 30, 2011** – Circadian Technologies Limited (ASX: CIR, OTCQX:CKDXY) is extremely proud to announce that its 100% owned subsidiary, Vegenics Pty Ltd, has submitted an investigational new drug (IND) application to the U.S. Food and Drug Administration (FDA) to initiate clinical studies of VGX-100. The first trial (Phase I) will involve the treatment of a variety of different cancer types in patients with late stage cancer.

VGX-100 is a human antibody that acts against the human VEGF-C protein. Treatment for cancers, particularly glioblastoma and metastatic colorectal cancers, are the first target indications for VGX-100. Additionally, Circadian is developing VGX-100 for a number of other cancer indications, as well as an agent to treat front-of-the-eye diseases.

Preclinical animal model studies across a wide range of tumour types have shown that when combined with Avastin® and chemotherapy, VGX-100 can significantly reduce tumour growth and tumour spread as well as significantly improve tumour inhibition, over and above that of Avastin® and/or chemotherapy alone. Recent studies have also implicated VEGF-C as a key mediator of disease progression during Avastin® treatment, implying that combination therapy with VGX-100 and Avastin® could significantly improve treatment outcomes in cancer patients.

“VGX-100 has the potential to significantly improve the treatment of patients suffering from cancer. The IND filing is an important milestone for us, as it completes our pre-clinical phase of development and transitions Circadian into a clinical development company. We expect to commence our first in man Phase I studies as soon as possible after FDA review. We also expect to see results from the study in the second half of 2012.” stated Robert Klupacs, CEO of Circadian Technologies Limited.

Circadian’s wholly owned subsidiary, Vegenics Pty Ltd, owns worldwide rights to an extensive intellectual property portfolio covering the angiogenesis and lymphangiogenesis targets VEGF-C, VEGF-D and the receptor protein VEGFR-3. Vegenics has also been granted exclusive worldwide rights to intellectual property filed by Schepens Eye Research Institute, covering the use of anti-lymphangiogenic molecules for the treatment of Dry Eye Disease.

### *Company enquiries*

Robert Klupacs  
Managing Director - Circadian  
Tel: +61 (0) 3 9826 0399 or  
[robert.klupacs@circadian.com.au](mailto:robert.klupacs@circadian.com.au)

### *Media enquiries*

Kyahn Williamson  
Buchan Consulting  
Tel: +61 (0) 3 9866 4722  
[kwilliamson@bcg.com.au](mailto:kwilliamson@bcg.com.au)

### *Media Enquiries – International*

Lauren Glaser  
The Trout Group LLC  
251 Post Street, Suite 412  
San Francisco, CA 94108  
Tel +1 215 740 8468  
[lglaser@troutgroup.com](mailto:lglaser@troutgroup.com)

Level 1 10 Wallace Avenue Toorak Victoria 3142 Australia

T +61 (3) 9826 0399 F +61 (3) 9824 0083 [www.circadian.com.au](http://www.circadian.com.au)

ABN 32 006 340 567



## **About Circadian Technologies Limited**

Circadian (ASX:CIR; OTCQX:CKDXY) is a biologics drug developer focusing on cancer and 'front of the eye' disease therapies. It controls exclusive worldwide rights to a significant intellectual property portfolio around Vascular Endothelial Growth Factor (VEGF)-C and -D. The applications for the VEGF technology, which functions in regulating blood and lymphatic vessel growth, are substantial and broad. Circadian's internal product development programs are primarily focussed on developing VGX-100 (a human antibody against VEGF-C) as a treatment for solid tumours, in particular glioblastoma and colorectal cancer, as well as for 'front of the eye' disease such as corneal neovascularisation and/or dry eye disease applications. Circadian has also licensed rights to some parts of its intellectual property portfolio for the development of other products to ImClone Systems, a wholly-owned subsidiary of Eli Lilly and Company, including the antilymphatic antibody-based drug IMC-3C5 targeting VEGFR-3.

## **About the IND Process**

An Investigational New Drug Application (IND) is a request for authorization from the U.S. Food and Drug Administration (FDA) to administer an investigational drug to humans.

During a new drug's preclinical development, a company focuses on generating scientific data and information necessary to establish that the product will not expose humans to unreasonable risks when used in clinical studies.

The IND application is made to the FDA and must contain information in three broad areas:

- Animal Pharmacology and Toxicology Studies - Preclinical data to permit an assessment of the activity of the drug and whether the product is reasonably safe for initial testing in humans.
- Manufacturing Information - Information pertaining to the composition, manufacturer, stability and controls used for manufacturing the drug substance and the drug product. This information is assessed to ensure that the company can adequately produce and supply consistent batches of the drug.
- Clinical Protocols and Investigator Information - Detailed protocols for proposed clinical studies to assess whether the initial-phase trials will expose subjects to unnecessary risks. Also, information on the qualifications of clinical investigators, professionals (generally physicians) who oversee the administration of the experimental compound, to assess whether they are qualified to fulfill their clinical trial duties. Finally, commitments to obtain informed consent from the research subjects, to obtain review of the study by an institutional review board (IRB), and to adhere to the investigational new drug regulations.

Once the IND is submitted, the applicant must wait 30 calendar days before initiating any clinical trials. During this time, the FDA reviews the data in the IND and determines the conditions under which human trials can commence.

## **About Circadian's pipeline of treatments for cancer**

The clinical and commercial success of Avastin®, an antibody that blocks the activity of VEGF-A, clinically validated anti-angiogenic drugs as an effective means of inhibiting solid tumour growth. By blocking the interaction of VEGF-A with its receptors, primarily VEGFR-2, the multi-billion dollar cancer therapeutic slows tumour growth by inhibiting blood vessel recruitment into the tumour, effectively starving tumours of essential nutrients and oxygen required for growth. However after a short period of time tumors can begin to grow again in the presence of Avastin®. Avastin® is approved by the US FDA in the following indications: metastatic colorectal cancer, non-squamous-cell lung cancer, metastatic breast cancer, glioblastoma, and metastatic renal cell carcinoma.

The angiogenic receptor VEGFR-2 can also be stimulated by VEGF-C and hence an inhibitor such as VGX-100, a key therapeutic in Circadian's portfolio, can produce greater blockade of this receptor pathway. As such, VGX-

Level 1 10 Wallace Avenue Toorak Victoria 3142 Australia

T +61 (3) 9826 0399 F +61 (3) 9824 0083 [www.circadian.com.au](http://www.circadian.com.au)

ABN 32 006 340 567



100 has the potential to block blood vessel growth in tumours which grow in the presence of Avastin® therapy and hence may completely shut down angiogenesis (the growth of blood vessels) mediated by VEGFR-2.

VEGF-C along with the molecule VEGF-D are also the only known proteins to bind and activate VEGFR-3 which drives lymphatic vessel and tumour-associated blood vessel growth. Inhibitors of VEGF-C thus have therapeutic potential to inhibit not only primary tumour growth through their anti-angiogenic activities, but to also inhibit tumour spread or metastasis via the lymphatic vessels - a mechanism of tumour dissemination that is often the deadliest aspect of many tumour types and a mechanism that is not effectively blocked by anti-VEGF-A or anti-VEGFR-2 therapeutics.

---

### **Inherent risks of Investment in Biotechnology Companies**

There are a number of inherent risks associated with the development of pharmaceutical products to a marketable stage. The lengthy clinical trial process is designed to assess the safety and efficacy of a drug prior to commercialisation and a significant proportion of drugs fail one or both of these criteria. Other risks include uncertainty of patent protection and proprietary rights, whether patent applications and issued patents will offer adequate protection to enable product development, the obtaining of necessary drug regulatory authority approvals and difficulties caused by the rapid advancements in technology. Companies such as Circadian are dependent on the success of their research and development projects and on the ability to attract funding to support these activities. Investment in research and development projects cannot be assessed on the same fundamentals as trading and manufacturing enterprises. Thus investment in companies specialising in drug development must be regarded as highly speculative. Circadian strongly recommends that professional investment advice be sought prior to such investments.

### **Forward-looking statements**

Certain statements in this ASX announcement may contain forward-looking statements regarding Company business and the therapeutic and commercial potential of its technologies and products in development. Any statement describing Company goals, expectations, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those risks or uncertainties inherent in the process of developing technology and in the process of discovering, developing and commercialising drugs that can be proven to be safe and effective for use as human therapeutics, and in the endeavor of building a business around such products and services. Circadian undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events, or otherwise. Actual results could differ materially from those discussed in this ASX announcement.