

### Thursday 28 February 2013

# Milestone marks Lilly and Acrux success

**Sydney, Australia, 28 February 2013** – One of the largest biotechnology collaborations in Australian history<sup>1</sup> has achieved another important milestone with the planned listing of AXIRON® (testosterone) for the treatment of confirmed androgen deficiency in males on the Pharmaceutical Benefits Scheme (PBS) as of 1 March 2013.<sup>2</sup>

The listing is the latest in a string of achievements for the collaboration between global pharmaceutical company Eli Lilly and Company and Melbourne-based biotechnology company Acrux (ASX: ACR). Acrux generated export revenue of \$55 million in 2010<sup>1</sup> and \$90 million in 2011.<sup>3</sup> To date, Acrux has returned approximately \$5 million in royalties to Monash University<sup>3</sup> – contributing to further Australian research and development (R&D), and \$20 million in corporate tax to the Australian Government.<sup>4</sup> Since 1998, Acrux has raised \$96 million in capital<sup>4</sup> and paid \$113 million in dividends to shareholders.<sup>4</sup>

Under the terms of the collaboration agreement made in 2010, Lilly has exclusive worldwide rights to commercialise AXIRON. The licensing arrangement was valued at \$335 million in potential milestone payments, plus royalties on future global sales of AXIRON.

General Manager of Lilly Australia-New Zealand, Becki Morison, explained that biotech is a cornerstone of Lilly's innovation strategy. "Lilly is committed to the sustained flow of innovation that makes a difference in patients' lives in markets around the world. We are extremely proud of our collaboration with Acrux, which has seen a treatment that originated in a Monash laboratory exported to benefit men in the United States and now Australia."

Chief Financial Officer & Company Secretary of Acrux, Jon Pilcher, said that Government and private investment is essential to the success of R&D in Australia. "AXIRON is the first product developed by Acrux to be made available to Australians via the PBS. The valuable support of the Australian Government and Lilly's contribution to Australian R&D has been fundamental in bringing AXIRON to market both locally and internationally."

### **About Lilly**

Founded in 1876, Lilly is a leading, innovation-driven company committed to developing a growing portfolio of best-in-class and first-in-class pharmaceutical products that help people live longer, healthier and more active lives.<sup>5</sup>

Lilly's areas of focus include men's health, oncology, cardiovascular, diabetes, neuroscience and osteoporosis.<sup>5</sup>

Lilly has a strong focus on innovation through research and development, with clinical research conducted in more than 50 countries and R&D facilities located in eight regions across the globe.<sup>5</sup>

For more information about Lilly Australia visit our website at www.lilly.com.au

#### **About Acrux**

Acrux is an Australian drug delivery company, developing and commercialising a range of patented pharmaceutical products for global markets, using innovative technology to administer drugs through the skin.<sup>6</sup>

The Acrux business was formed in 1998<sup>7</sup> to develop and commercialise an invention from the Victorian College of Pharmacy (Monash University). Acrux successfully applied for two grants from the Australian government, the Pharmaceutical Partnerships Program (P3)<sup>9</sup> and the R&D START program which contributed to the development of the technology. 10

Acrux Limited registered as a Pooled-Development Fund (PDF) in 1999. <sup>11</sup>The PDF program allows capital gains and dividends for shareholders to be exempt from tax. <sup>11</sup> These incentives were critical in enabling Acrux to attract the long-term, high-risk capital required to retain the technology in Australia and develop it into commercial products for world markets.

For more information about Acrux visit www.acrux.com.au

### About androgen deficiency

Androgen deficiency is a clinical condition characterised by male hormone deficiency and relevant clinical features. It occurs when the body has lower than normal amounts of male hormones.<sup>12</sup>

For more information about androgen deficiency please visit <a href="https://www.andrologyaustralia.org">https://www.andrologyaustralia.org</a>

### -Ends-

## **About AXIRON® (testosterone)**

AXIRON is indicated as an androgen replacement therapy for confirmed testosterone deficiency in males.<sup>2</sup>

**Contraindications:** AXIRON is contraindicated in men with known or suspected carcinoma of the breast or prostate. AXIRON is contraindicated in women who are, or who may become pregnant, or who are breastfeeding. AXIRON may cause foetal harm when administered to a pregnant woman. AXIRON may cause serious adverse reactions in nursing infants. If a pregnant woman is exposed to AXIRON, she should be apprised of the potential hazard to the foetus, hypersensitivity to the active substance or to any of the excipients.<sup>2</sup>

**Precautions:** Androgens may accelerate the progression of sub-clinical prostate cancer and benign prostatic hyperplasia. AXIRON should not be used by women, due to possible virilising effects. Prior to testosterone initiation, all patients must undergo a detailed examination in order to exclude the risk of pre-existing prostate cancer. Testosterone insufficiency should be clearly demonstrated by clinical features (regression of secondary sexual characteristics, change in body composition, asthenia, reduced libido, erectile dysfunction etc.) and confirmed by 2 separate blood testosterone measurements.<sup>2</sup>

There is limited experience of the use of AXIRON in elderly patients over 65 years of age. Currently, there is no consensus about age specific testosterone reference values. However, it should be taken into account that physiological testosterone serum levels are lower with increasing age.<sup>2</sup>

Testosterone concentrations should be monitored when switching the patient from another product onto AXIRON.<sup>2</sup>

AXIRON is not a treatment for male sterility or impotence in men with normal serum testosterone levels. Athletes should be informed that AXIRON contains an active substance (testosterone), which may give positive results in an anti-doping test. Androgens are not indicated for enhancing muscular development in healthy individuals.<sup>2</sup>

#### Interactions with other medicines:

Changes in insulin sensitivity, glucose tolerance, glycaemic control, blood glucose and glycosylated hemoglobin have been reported with androgens. In diabetic patients, medication requirements may change.<sup>2</sup>

When androgens are used simultaneously with anti-coagulants, the anti-coagulant effects may be increased. More frequent monitoring of INR and prothrombin time is recommended in patients taking anticoagulants, especially at the initiation and termination of androgen therapy.<sup>2</sup>

No studies on the effects on the ability to drive and use machines have been performed. Androgens may decrease levels of thyroxine-binding globulin resulting in decreased total T4 serum levels and increased resin uptake of T3 and T4. Free thyroid hormone levels remain unchanged, however, and there is no clinical evidence of thyroid dysfunction.<sup>2</sup>

**Adverse effects:** The most common side effects associated with AXIRON include skin redness and irritation around the application site, increased blood pressure, headache, diarrhoea and vomiting.<sup>2</sup>

For more information about AXIRON® (testosterone) please see the Consumer Medicine Information (CMI) at <a href="https://www.lilly.com.au">www.lilly.com.au</a>.

# PBS Information: AXIRON® is not listed on the PBS

Before prescribing please review full PI which is available on request from Eli Lilly Australia Pty. Limited. 112 Wharf Road, West Ryde, NSW 2114.

### **AXIRON® MINIMUM PRODUCT INFORMATION**

Indication: Androgen replacement therapy for confirmed testosterone deficiency in males. Dosage and Administration: The recommended starting dose is 60mg (3mL, equivalent to one pump actuation applied to each underarm) once daily at approximately the same time each day. If the measured serum testosterone concentration is below the normal range, the daily dose may be increased to 90 mg (4.5 ml, equivalent to three pump actuations), up to a maximum of 120 mg (6ml, equivalent to four pump actuations). If the serum testosterone concentration exceeds the normal range, the daily dose may be decreased by 30 mg (1.5 ml, equivalent to one pump actuation). AXIRON is applied to the underarm using an applicator. Contraindications: In men with known or suspected carcinoma of the breast or prostate, in women who are, or who may become pregnant, or who are breastfeeding, Hypersensitivity to testosterone or to any of the excipients. Precautions: May accelerate the progression of pre-existing or sub-clinical prostate cancer and benign prostatic hyperplasia, should be used only if hypogonadism (hyper- and hypogonadotrophic) has been demonstrated and if other aetiology, responsible for the symptoms, has been excluded, elderly patients over 65 years of age, switching from another testosterone product, on long-term androgen therapy. The following laboratory parameters should be checked periodically: haemoglobin, haematocrit, liver function tests, and lipid profile, increases in haematocrit may require reductions in dose or discontinuation. Patients suffering from severe cardiac, hepatic or renal insufficiency, hypertension, ischemic heart disease or cardiac failure. Increased risk of sleep apnoea in those with obesity or chronic lung disease, patients with epilepsy and migraine, cancer patients at risk of hypercalcaemia. In diabetic patients, medication requirements may change, changes in insulin sensitivity may occur. When used simultaneously with anti-coagulants, the anti-coagulant effects may be increased. Concurrent use with ACTH or corticosteroids may result in increased fluid retention. Large doses of exogenous androgens may suppress spermatogenesis, gynecomastia occasionally develops and persists. Solution is

flammable, can be transferred to other persons by close skin to skin contact, patients with a major risk of non-compliance with safety instructions. Not a treatment for male sterility or impotence in men, may give positive results in an anti-doping test. Should not be used by women due to virilising effects. **Adverse Effects:** Very Common ( $\geq 10\%$ ): administration site reactions. Common ( $\geq 1\%$  and < 10%): hypercholesterolemia, glucose dysregulation, anger, anxiety, mood swings, insomnia, dizziness, migraine, headache, increased blood pressure, diarrhoea, nausea, vomiting, acne, epidermal and dermal conditions, haematology investigations, PSA increased.

Refer to full PI for a complete list.

#### References

- 1. Acrux (2010) Yesterday Today Tomorrow. *Acrux Annual Report 2010*. Acrux Limited and subsidiary companies.103-113 Stanley Street. West Melbourne. Victoria 3003, Australia.
- 2. AXIRON Product Information (2012). Eli Lilly Australia Pty. Limited. 112 Wharf Road, West Ryde, NSW 2114.
- 3. Acrux (2011). *Acrux Annual Report 2011*. Acrux Limited and subsidiary companies.103-113 Stanley Street. West Melbourne. Victoria 3003, Australia.
- 4. Acrux (2012). *Acrux Annual Report 2012*. Acrux Limited and subsidiary companies.103-113 Stanley Street. West Melbourne. Victoria 3003, Australia.
- 5. About Lilly. Eli Lilly Australia Pty. Limited. 112 Wharf Road, West Ryde, NSW 2114. Accessed 7 February 2013. www.lilly.com.
- 6. About Acrux. (2010). Lilly and Acrux Receive FDA Approval for AXIRON® (testosterone) topical solution CIII. Eli Lilly and Company Lilly Corporate Center, Indianapolis, Indiana 46285 USA.
- 7. Australian Securities and Investments Commission. ASIC Register. Accessed 7 February 2013. http://www.asic.gov.au
- 8. Acrux Monash University (2012). Acrux Success takes Monash innovation to the world. Accessed 15 January 2013 via http://monash.edu/industry/impact/success/acrux.html
- 9. Carr K, Minister for Innovation, Industry, Science and Research (2009). *Pharmaceuticals Industry Strategy Group.*Commonwealth of Australia. P.122. Parliament House, Canberra.
- 10. Acrux (2004) IPO Prospectus. Acrux Limited and subsidiary companies.103-113 Stanley Street. West Melbourne. Victoria 3003, Australia.
- 11. Acrux (2012) AusIndustry. Accessed 15 January 2013 via http://www.ausindustry.gov.au/programs/venture-capital/InvestmentInnovationVentureCapital/Pages/Acrux.asp
- 12. Basin, S et. al. (2006) Testosterone Therapy in Adult Men with Androgen Deficiency Syndromes: An Endocrine Society Clinical Practice Guideline. *The Journal of Clinical Endocrinology and Metabolism* 91(6): 1995-2010.