

# Imugene Ltd

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## Imugene targets defender B-cells with cancer vaccines HER-Vaxx and B-Vaxx

- Its lead cancer vaccine HER-Vaxx, which acts on the HER2/neu cancer target, did well in phase 1b study
- Second candidate B-Vaxx is also an anti-HER2/neu vaccine like HER-Vaxx
- Pipeline product KEY-Vaxx acts on PD1 to break immune tolerance
- The company wants to develop its HER2/neu and PD1 candidates first
- Pipeline also includes peptide mimics that can inhibit growth factor signalling, targeting HER1, HER3, VEGF, IGF-1R and CD28

### What does Imugene do?

Imugene Limited (ASX:IMU) specialises in the emerging field of cancer immunotherapy. The immunoncology company is run by Leslie Chong, a biologist with more than 20 years of oncology experience in phase I-III clinical program development. She was previously a senior clinical program lead at Roche Holding Ltd (SWX:ROG) (ETR:RHO) (OTCMKTS:RHHVF) (OTCMKTS:RHHBY) company Genentech.

### What does Imugene own?

The company's key assets are B-lymphocyte or B-cell peptide cancer vaccines that link an immunogenic protein with a B-cell epitope peptide and include an adjuvant to induce the body into producing antibodies against normal self-proteins.

These proteins include the well-known and validated cancer target human epidermal growth factor receptor 2 protein also known as receptor tyrosine-protein kinase erbB-2 or HER2/neu (CD340).

Another protein is the programmed cell death protein 1 (PD1 or CD279).

Imugene's two lead therapeutic vaccine candidates are the HER-Vaxx vaccine, an anti-HER2/neu product that has been taken through a successful phase 1b study in 14 gastric cancer patients.

Ten of the tumour patients were available for evaluation and were dosed with the HER-Vaxx vaccine along with standard-of-care chemotherapy with cisplatin and fluorouracil or capecitabine.

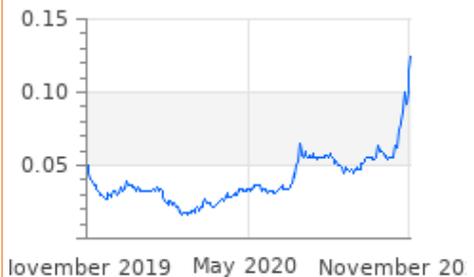
The vaccine appeared to be well tolerated by the 10 subjects. Five had a partial response — with a 30% or greater decrease in tumour size from baseline scans — while four showed disease stabilisation.

This vaccine was designed to target tumours that over-express the HER2/neu receptor, including gastric, breast, ovarian, lung and pancreatic cancers.

**Price:** 0.11

**Market Cap:** \$505.39 m

#### 1 Year Share Price Graph



#### Share Information

**Code:** IMU

**Listing:** ASX

**52 week High Low**  
0.14 0.016

**Sector:** Pharma & Biotech

**Website:** www.imugene.com

#### Company Synopsis:

*Imugene Ltd (ASX:IMU) is listed on the Australian Securities Exchange.*

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It was developed by scientists at the Medical University of Vienna in Austria and is constructed from several B cell epitopes derived from the extracellular domain of HER2/neu.

Both the phase I and pre-clinical stimulated a potent polyclonal antibody response to the HER2/neu cancer target.

Imugene's second lead therapeutic vaccine candidate is B-Vaxx, another anti-HER2/neu vaccine which is similar to HER-Vaxx.

B-Vaxx is also another B-cell peptide cancer vaccine and was designed to treat tumours that over-express the HER2/neu receptor.

These cancers include gastric, breast, ovarian, lung and pancreatic cancers.

Also in Imugene's pipeline is the KEY-Vaxx, developed by Professor Pravin Kaumaya at the Ohio State University in Columbus OH.

KEY-Vaxx immunotherapy is constructed from a single B-cell epitope derived from the extracellular domain of PD1.

The B-cell peptide cancer vaccine aims to induce the body to produce polyclonal antibodies that block PD1 signalling and produce an anticancer effect similar to Keytruda, Opdivo and the other immune checkpoint inhibitor monoclonal antibodies that are transforming cancer treatments.

Imugene has also in-licensed a number of other B-cell peptide cancer vaccines from OSU in its pipeline, along with peptide mimics that can inhibit growth factor signalling, including programs that targeting HER1, HER3, VEGF, IGF-1R and CD28.

The near-term plan for the company is to develop its HER2 and PD-1 B-cell vaccines.

Imugene hopes to pick up its pipeline products down the track, noting the considerable promise they have shown in preclinical studies.

The company is well-funded to support its commercial and clinical milestones and at December 31, 2018, had A\$24.05 million in the bank.

Its efforts are guided by the experience of several recognised leaders in immuno-oncology who have joined Imugene's Scientific Advisory Board - Dr Josep Tabernero, Professor Tanios Bekaii-Saab, Professor Pravin Kaumaya and Professor Michael Caligiuri.

## Inflection points

Success of more advanced study of anti-HER2/neu (CD340) vaccine HER-Vaxx

Success of anti-HER2/neu (CD340) vaccine B-Vaxx

Progression of anti-PD1 (CD279) vaccine KEY-Vaxx and other pipeline products from the clinic

Relative success of other anti-tumour vaccines in the oncology space

## **Managing director & CEO Leslie Chong confident of approach**

"We're squarely in the immunoncology space where everyone is in the T-cell modulation space," managing director & CEO Leslie Chong told the Proactive Investors Stocktube channel at the Annual Biotech Showcase in San Francisco last month. "We really think that ... waking up your B-cells to create the antibodies is a key to our success and the differentiation."

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