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**Sydney, Australia**

**ASX: NOX**

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## **NOX SUBSIDIARY ANNOUNCES IMPORTANT DRUG DISCOVERY**

- **New family of drug candidates inhibit the ‘master switch’ involved in inflammation and autoimmunity**
- **Able to cross the blood-brain barrier and blood-nerve barriers**
- **Opens development of treatments of inflammatory and autoimmune diseases of the brain and peripheral nerves**
- **Multiple sclerosis and peripheral neuropathies identified as potential clinical targets**
- **Patent applications lodged**
- **Development being fast-tracked.**

**Sydney, 24 September 2018:** Noxopharm (ASX: NOX) (the ‘Company’) and its majority-owned subsidiary, Nyrada, have discovered a way to inhibit IRAK4, a protein widely regarded as the ‘master switch’ in the development of many forms of chronic inflammation including autoimmune diseases.

Nyrada Inc is a US incorporated biotechnology company, two-thirds owned by Noxopharm and consolidated within the NOX Group, to hold the Noxopharm non-oncology drug development programs: (i) a PCSK9 inhibitor; (ii) an anti-inflammatory drug; (iii) a neuroprotectant drug.

IRAK4 has emerged in recent years as a key switch in the cells that form the body’s innate immune system. Faulty IRAK4 behaviour in these innate immune cells is widely regarded as playing a key role in the development of many forms of chronic inflammatory and autoimmune diseases. This has led to IRAK4-inhibitors being widely hailed as the next generation of anti-inflammatory drugs for the treatment of autoimmune diseases such as rheumatoid arthritis, inflammatory bowel disease (including ulcerative colitis and Crohn’s Disease), lupus and psoriasis.

The Company has discovered a compound that is a potent inhibitor of IRAK4. And while this provides an opportunity to treat the same broad range of conditions being pursued by others, the Company believes that the future of its IRAK4 program lies in the treatment of inflammatory diseases of the

central nervous system (brain and spine) and the body's peripheral nerves. This belief comes from the ability of this compound to cross the barriers that exclude the great majority of drugs from entering the brain and peripheral nerves. This ability provides what Noxopharm believes is a major opportunity to pursue drug development for inflammation associated with diseases such as Alzheimer's Disease, Parkinson's Disease, multiple sclerosis, amyotrophic lateral sclerosis (motor neurone disease) and peripheral neuropathies (particularly diabetic peripheral neuropathy).

The Company is able to make today's announcement with the recent lodgement of a US provisional patent application and a Patent Cooperative Treaty (PCT) patent application.

James Bonnar, Nyrada Vice-President, Research & Development, said, "A lot of attention currently is being given to developing IRAK4 inhibitors for diseases such as rheumatoid arthritis and gouty arthritis and lupus, but we see our discovery as a breakthrough in providing the tools needed to address inflammatory and autoimmune diseases of the nervous system."

Graham Kelly, Noxopharm CEO, added, "I see this as a major development. At a strategic level it adds an important plank to the Group's ambitions to evolve into a global biotech company. But importantly at the patient level, it represents a realistic prospect for finally being able to provide treatment for a number of insidious diseases affecting the nervous system which have defied successful management to date."

"Neuroinflammation has long been known to be associated with diseases such as Alzheimer's, Parkinson's and multiple sclerosis. But recent evidence now shows that neuroinflammation is associated even with psychiatric conditions such as depression, bipolar disorder and schizophrenia."

"Having a drug that blocks IRAK4 and all its downstream pro-inflammatory cytokine effects, combined with its ability to reach the brain in sufficient levels, is an exciting breakthrough that has resulted from a lot of hard work by a team of Australian chemists and scientists," Kelly added.

Pre-clinical programs now are being undertaken to identify the most appropriate therapeutic indication(s), with human studies likely in 2020.

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#### **About IRAK4**

IRAK4 (interleukin-1 receptor-associated kinase 4) is a key protein kinase in innate immune cells. Toll-Like Receptor (TLR) and Interleukin-1 Receptors (IL-1R) signalling via the adaptor protein myeloid differentiation factor 88 (MYD88) results in activation of IRAK4 which in turn results in downstream production of pro-inflammatory cytokines through NF- $\kappa$ B and mitogen-activated protein kinase (MAPK) activation. Inhibition of IRAK4 function is validated as a means of treating cytokine-driven autoimmune and inflammatory conditions.

#### **About Noxopharm**

Noxopharm is a clinical-stage Australian oncology drug development company with offices in Sydney and Hong Kong. The Company has a primary focus on the development of drugs to sensitise cancer cells to radiotherapy and chemotherapy. Veyonda<sup>®</sup> is the first pipeline product, with later generation drug candidates under development.

#### **About Nyrada**

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This announcement may contain forward-looking statements. You can identify these statements by the fact they use words such as “aim”, “anticipate”, “assume”, “believe”, “continue”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “predict”, “project”, “plan”, “should”, “target”, “will” or “would” or the negative of such terms or other similar expressions. Forward-looking statements are based on estimates, projections and assumptions made by Noxopharm about circumstances and events that have not yet taken place. Although Noxopharm believes the forward-looking statements to be reasonable, they are not certain. Forward-looking statements involve known and unknown risks, uncertainties and other factors that are in some cases beyond the Company’s control that could cause the actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statement. No representation, warranty or assurance (express or implied) is given or made by Noxopharm that the forward-looking statements contained in this announcement are accurate and undue reliance should not be placed upon such statements.