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Sydney, Australia

**ASX: NOX**

**Noxopharm Limited**

ABN 50 608 966 123

Registered Office

and

Operational Office:

Suite 3, Level 4

828 Pacific Highway

Gordon NSW 2072

Australia

**Board of Directors**

**Mr Peter Marks**

Chairman

Non-Executive

Director

**Dr Graham Kelly**

Executive Director

Managing Director

**Dr Ian Dixon**

Non-Executive

Director

**Mr John Moore**

Non-Executive

Director

ASX Limited

20 Bridge Street

SYDNEY NSW 2000

## Idronoxil Confirmed as New Immuno-Oncology Drug

- **New class of immuno-oncology drug identified**
- **Activator of NK cells and CD4+ immune cells**
- **Potential to boost function of current immuno-oncology drugs.**

**SYDNEY, April 16, 2019:** Noxopharm (ASX: NOX) releases data from the first series of pre-clinical studies confirming that idronoxil (IDX), the active ingredient in the Company's anti-cancer drug candidate, Veyonda<sup>®</sup>, activates the immune system. **The studies confirm that IDX activates cells associated with both the innate and adaptive immune systems, increasing functional natural killer (NK) cells and CD4+ (T-helper) cell numbers.** The studies involving human cell and animal test systems are part of a coordinated collaboration between the Company and a number of prominent universities and research institutes in Australia and overseas.

Greg van Wyk, M.D., CEO of Noxopharm, said, "Veyonda<sup>®</sup> appears to be a truly versatile drug candidate, with these immuno-oncology effects having the potential to complement its radio-enhancing and chemo-enhancing functions across a broad range of cancer types. This exciting discovery supports our strategy of combining Veyonda<sup>®</sup> with radiotherapy or chemotherapy, as engaging the immune system to enhance the effect of these treatments has seen a revolution in cancer care in recent years."

This discovery positions Veyonda<sup>®</sup> as a potential means of overcoming the restricted benefit of the current standard immuno-oncology drugs (checkpoint inhibitors). These drugs have proved to be limited in their effectiveness, providing benefit only in selected cancers such as lung cancer, melanoma, bladder cancer, head and neck cancer and Hodgkin's lymphoma. Moreover, whilst patients who respond can derive life-changing benefit from these drugs, only about 20-25% of patients with these cancer types typically respond to these drugs, leaving the majority of cancer patients across the entire cancer spectrum deriving little or no benefit.

Seeking ways to extend the benefit of current immuno-oncology drugs (which target CD8+ immune cells) to most cancer patients is a major goal in the global pharmaceutical sector, with extending the activation to the innate immune system (NK cells and CD4+ cells) being of particular research interest. The studies reported on today confirm that IDX modulates cells associated with both arms (*adaptive* and *innate*) of the immune system, which the Company believes positions Veyonda<sup>®</sup> in the vanguard of this global effort.

The global immune checkpoint inhibitor market was valued at US\$10.5 billion in 2017 and is projected to reach US\$56 billion in 2025. These figures are predicated on the use of these drugs in their current restricted manner. Lifting the response rate by even 10% above current use would represent a major

breakthrough and expanding responsiveness to additional cancer types could be expected to expand the market considerably.

The research program was prompted by evidence of abscopal (off-target) responses seen in patients being treated with a combination of Veyonda® and radiotherapy, suggesting an immunological response. The discovery reported today provides a plausible explanation for those observed abscopal responses.

**Future efforts.** The Company's 3-pronged clinical strategy of studying Veyonda® in combination with chemotherapy, external beam radiotherapy (DARRT program) and intravenous radiopharmaceuticals (LuPIN program) continues unchanged, with knowledge about the immuno-oncology function of Veyonda® serving to provide an additional understanding of how Veyonda® may be working.

The Company sees the primary significance of the discovery announced today as the opportunity to combine Veyonda® with a standard checkpoint inhibitor with the aim of achieving a more potent immuno-oncology effect in cancers currently targeted by checkpoint inhibitors, as well as a strong effect in common cancer types like breast and prostate cancer currently not being targeted. The most appropriate way to incorporate a current checkpoint inhibitor into the current clinical program is under current consideration.

### **About Veyonda®**

Veyonda® (previously known as NOX66) is an innovative dosage formulation of the experimental anti-cancer drug, idronoxil. Idronoxil inhibits the oncogene, Ecto-NOX disulfide-thiol exchanger type 2, leading to inhibition of the key secondary pro-survival messenger, sphingosine-1-phosphate. This enhances the DNA-damaging effects of both radiotherapy and cytotoxic chemotherapy, in turn triggering by as a yet to be disclosed up-regulation of the body's innate immune system.

### **About Noxopharm**

Noxopharm is a clinical-stage Australian drug development company with offices in Sydney, New York and Hong Kong. The Company has a primary focus on the development of drugs based on a phenolic chemical structure, with Veyonda® the first pipeline product. The pipeline includes a number of other drug candidates for both oncology (within NOX) and non-oncology indications (in subsidiary company, Nyrada Inc).

### **Investor & Corporate Enquiries:**

Prue Kelly  
M: 0459 022 445  
E: [info@noxopharm.com](mailto:info@noxopharm.com)

### **Company Secretary:**

David Franks  
T: +61 2 9299 9690  
E: [David.Franks@automicgroup.com.au](mailto:David.Franks@automicgroup.com.au)

### **Media Contact:**

Cherilyn Cecchini, M.D.  
LifeSci Public Relations  
T: +1 646 876 5196  
E: [cecchini@lifescipublicrelations.com](mailto:cecchini@lifescipublicrelations.com)

[www.noxopharm.com](http://www.noxopharm.com)

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