# Important Boost for Veyonda With U.S. Patent Office Allowing Abscopal Claims

**Highlights**

- **In a major advance for the future commercial value of Veyonda®, the U.S Patent Office has allowed key abscopal response claims for the Company's DARRT immuno-oncology treatment**
- **The abscopal response triggered by radiotherapy remains a highly sought but elusive form of immunological response considered potentially disruptive to most other forms of cancer therapy**
- **Following a 25% partial abscopal response rate obtained in its pilot clinical trial, Noxopharm is confident that its DARRT therapy has the potential to become a mainstream immuno-oncology treatment for prostate cancer**
- **The patent covers Veyonda in combination with any form of radiotherapy designed to induce an abscopal response in prostate cancer patients**
- **Noxopharm believes that this patent action underpins a potentially medically significant and highly lucrative future for Veyonda**
- **The patent will be in force until at least 6 April 2037.**

**Sydney 27 September 2021: Australian clinical-stage drug development company Noxopharm Limited (ASX:NOX)** is pleased to announce that the U.S. Patent Office has allowed patent claims relating to the use of a combination of Veyonda and radiotherapy, including external beam radiotherapy (EBRT), with the purpose of generating abscopal responses in patients with metastatic prostate cancer. These claims are fundamental to helping secure the commercial success of the Company's DARRT (Direct and Abscopal Response to Radiotherapy) therapy involving a combination of Veyonda and low-dose EBRT.

DARRT therapy is a form of immuno-oncology treatment. It involves the delivery of a short course of a low dose of radiotherapy to a single tumour in the body of a patient with metastatic disease. The aim is to trigger a local immune response in the irradiated tumour that spills over into an all-of-body immune response resulting in the resolution of all (complete response) or some (partial response) of the other tumours in the body.

Most solid cancers, including the common prostate, breast and colorectal cancers, have proved to be overwhelmingly resistant to immuno-oncology (IO) treatments to date. This includes immune checkpoint inhibitors and CAR-T cell therapy. Against that background, the Company's DARRT-1 study already has delivered a 25% partial abscopal response rate in men with late-stage prostate cancer *(ASX announcement 1 June 2020),* something that the Company is confident can be repeated in other forms of solid cancer.

Compared to current IO treatments, the abscopal response is substantially better tolerated, potentially effective across a broader spectrum of cancer types, considerably more affordable, and more accessible. However, the challenge remains developing a method of lifting the abscopal response rate to a level where it will be accepted as a mainstream treatment.

**Noxopharm CEO and Managing Director, Graham Kelly PhD**, said, "We see the allowance of this patent application as a major win for the Company in our goal of seeing DARRT therapy become a mainstream cancer treatment.

Treating metastatic cancer through an abscopal response is arguably the best-tolerated and least destructive form of cancer therapy. Its ability to trigger long-term remission of some or all tumours in the body in a well-tolerated, non-toxic and low-demanding way for the patient clearly marks it as a potentially disruptive treatment. The challenge has been in moving the abscopal response rate from its current very low base.

We believe we have met that challenge with a remarkable 25% abscopal response rate in our first clinical effort. While those responses were partial, our Phase 2 DARRT study is hoping to take these responses to another level by stepping up the intensity of Veyonda treatment. We also are expanding into breast and lung cancer which provides us with the future opportunity to seek expanded patent coverage.

On what we have seen to date, we believe that DARRT therapy has the potential to go on to become a disruptive cancer treatment across most forms of cancer, starting with prostate cancer, which is why the patent news announced today is so important."

**The abscopal response and Veyonda**

Idronoxil, the active ingredient in Veyonda, meets two putative key prerequisites for an abscopal response:

i. the need to augment the local radiation-induced immune response by blocking autophagic clearance of mitochondrial DNA fragments following irradiation (*ASX announcement 13 November 2020*)[1,2]
ii. the need to facilitate the entry of activated immune cells into non-irradiated tumours (the so-called COLD to HOT tumour effect) *(ASX announcement 18 November 2020)*.

Compared to the DARRT-1 trial, patients in the multi-national Phase 2 DARRT-2 trial will receive considerably higher Veyonda doses as well as an increased number of Veyonda treatment cycles. DARRT-2 currently is preparing to enrol patients with late-stage prostate, breast and lung cancer.

**Patent details**

The patent application number is US 16/091706 and will be in force until at least 6 April 2037.

This is just the seventh known patent issued by the U.S. Patent Office in the field of abscopal responses. Only two of the other six patents cite clinical examples, and none of those six patents involve technologies related in any way to the Noxopharm patent.

The significance of patent grant lies in providing Noxopharm with an exclusive market position in the U.S. should the DARRT treatment of Veyonda plus low-dose radiotherapy be approved for use in the treatment of prostate cancers. While the Company's initial focus is on the use of DARRT therapy in late-stage prostate cancer, the Company sees the DARRT concept potentially applicable to early-stage disease where radiotherapy remains a standard form of treatment. With approximately 250,000 men

diagnosed each year in the U.S. with prostate cancer,[3] it is understandable that deals for new prostate cancer treatments in recent years have included multi-billion dollar corporate transactions.

References:

1. Yamazaki T el al (2020). *Mitochondrial DNA drives abscopal responses to radiation that are inhibited by autophagy*. Nat Immunol 21 (10):1-12 DOI:10.1038/s41590-020-0751-0
2. Miyamoto M et al (2018). *Phenoxodiol increases cisplatin sensitivity in ovarian clear cancer cells through XIAP down-regulation and autophagy inhibition*. Anticancer Res 38 (1):301-306. DOI: 10.21873/anticanres.12222
3. American Cancer Society.

**-ENDS-**

*Graham Kelly, CEO and Managing Director of Noxopharm, has approved the release of this document to the market on behalf of the Board of Directors.*

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**About Noxopharm**

Noxopharm Limited (ASX:NOX) is an Australian clinical-stage drug development company focused on the treatment of cancer and cytokine release syndrome (septic shock).

Veyonda® is the Company's first pipe-line drug candidate currently in Phase 2 clinical trialling. Veyonda® has two main drug actions – a moderating effect on the ceramide/sphingosine-1-phosphate balance and inhibition of STING signalling. Activity against the former target contributes to its dual-acting oncotoxic and immunomodulatory functions designed to enhance the effectiveness and safety of standard oncology treatments, i.e., chemotherapies, radiation therapies and immune checkpoint inhibitors. Activity against the latter target provides an anti-inflammatory effect, as well as contributing to an anti-cancer action, but also potentially blocking septic shock.

Noxopharm is running comprehensive drug discovery programs in both oncology and inflammation, and is the major shareholder of US biotechnology company, Nyrada Inc (ASX:NYR), active in the areas of drug development for cardiovascular and neurological diseases.

To learn more, please visit: noxopharm.com

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