ASX & Media Release

PAT-DX1 Significantly Improves Survival in Animal Model of Glioblastoma

Melbourne, Australia; March 19, 2018: Patrys Limited **(ASX: PAB)**, a therapeutic antibody development company, is pleased to announce further pre-clinical data for its drug candidate PAT-DX1, Patrys' humanized version of the 3E10 anti-DNA antibody, in an animal model of glioblastoma.

Glioblastoma is a particularly aggressive, highly malignant form of brain cancer characterized by very fast cellular reproduction. Glioblastomas constitute approximately 17% of all primary brain cancers, with almost 12,000 new cases diagnosed in the U.S. each year[1]. The current standard of care for glioblastoma is surgical resection followed by radiation and chemotherapy (temozolomide, trade name TEMODAR®[2]), with a median survival period of 15 months, depending on disease severity. One of the key prognostic markers in glioblastoma is the methylation status of the promoter for DNA repair gene MGMT. Methylated MGMT is predictive of better response to temozolomide and improved survival, while MGMT-unmethylated glioblastoma has a worse prognosis and is more difficult to treat.

Drs James Hansen and Jiangbing Zhou of Yale University have shown that PAT-DX1 administered by tail vein injection significantly improved survival in an orthotopic animal model of MGMT-unmethylated glioblastoma derived from human tumour explants. Based on groups of seven mice in each study arm, mice treated with PAT-DX1 showed a median survival of 87 days, more than 20% longer than controls (median 72 days). Mean survival data reflected these trends (83 days ± 3.2 days for PAT-DX1 treated mice, 71 days ± 1.2 days for controls). Statistical analysis indicated a significant difference between the two groups, with *P value* = 0.004. No toxicity associated with DX1 treatments was observed.

The study also evaluated the performance of the poly (ADP-ribose) polymerase (PARP) inhibitor olaparib (trade name LYNPARZA®[2]) and a combination of olaparib and PAT-DX1 in the same model of glioblastoma. PAT-DX1 alone was superior to olaparib alone, and the addition of olaparib to PAT-DX1 did not yield any significant improvement over PAT-DX1 alone. These results likely reflect the limited ability of olaparib to cross the blood brain barrier, and they reinforce the need for methods in neuro-oncology to help deliver therapeutics such as olaparib across the blood brain barrier to treat malignancies of the central nervous system.

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[1] http://www.aans.org/Patients/Neurosurgical-Conditions-and-Treatments/Glioblastoma-Multiforme

[2]TEMODAR is a registered trademark of Merck Sharpe & Dohme Corp.

[3] LYNPARZA is a registered trademark of the AstraZeneca group of companies.

To this end, Patrys is developing nanoparticles conjugated to PAT-DX1 (PAT-DX1-NP) that have been shown to enhance targeting to brain tumours in a mouse model of glioblastoma. These PAT-DX1-NPs can be loaded with therapeutics that otherwise would have limited access to brain tumors. PAT-DX1 therefore has potential to be used against brain tumours both as a single agent and as a delivery vector to help transport drug-loaded nanoparticles across the blood brain barrier.

"The observation that PAT-DX1 enhanced survival of animals with MGMT-unmethylated glioblastoma is significant and a positive signal for Patrys' ongoing pre-clinical research. The result is consistent with the previously described observation that PAT-DX1 crossed the blood brain barrier and significantly reduced tumour size in the same animal model of glioblastoma. Patrys believes that this model, based on human tumor explants, is one of the best animal models for glioblastoma, and is encouraged by these data that show that DX1 has single agent activity against glioblastoma with no apparent toxicity," said Dr James Campbell, Chief Executive Officer and Managing Director of Patrys.

"Patrys continues with its pre-clinical work to optimise dosing and scheduling of PAT-DX1 in a range of cancers and is simultaneously progressing pre-manufacturing activities" noted Dr Campbell.

About Deoxymab 3E10, PAT-DX1 and PAT-DX1-NP

Deoxymab 3E10 is a DNA damage-repair (DDR) antibody that was first identified in lupus as an autoantibody that bound to normal cells. Of particular interest is that whilst most antibodies bind to cell surface markers, Deoxymab 3E10 penetrates into the cell nuclei and binds directly to DNA where it inhibits DNA repair processes and kills cells that have mutations or deficiencies in DNA repair mechanisms as found in various cancer cells. Deoxymab 3E10 has single agent therapeutic potential and has been shown to significantly enhance the efficacy of both chemo- and radiotherapies. Further, Deoxymab 3E10 can be conjugated to nanoparticles to target delivery of chemotherapeutics and imaging agents to tumors.

Patrys has developed a humanized form of Deoxymab 3E10, PAT-DX1 with improved activity over the original version of 3E10, and is progressing this, and a nanoparticle-conjugated form (PAT-DX1-NP) towards the clinic. In a range of pre-clinical cancer models PAT-DX1 has shown significant ability to kill cancer cells in cell models, human tumor explants, xenograft and orthotopic models. Treatment with PAT-DX1 has been shown to significantly improve survival in an orthotopic model of glioblastoma. PAT-DX1 has also been shown to work synergistically with the approved PARP inhibitor, olaparib. Patrys believes that PAT-DX1 may have application across a wide range of malignancies such as gliomas, melanomas, prostate, breast, pancreatic and ovarian cancers.

Patrys' rights to Deoxymab 3E10 are part of a worldwide license to develop and commercialize as anti-cancer and diagnostic agents a portfolio of novel anti-DNA antibodies and antibody fragments, variants and conjugates discovered at Yale University.

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About Patrys Limited:
Based in Melbourne, Australia, Patrys (ASX: PAB) is focused on the development of antibodies as therapies for a range of different cancers. Patrys has a pipeline of anti-cancer antibodies for both internal development and as partnering opportunities. More information can be found at www.patrys.com.