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INNATE PHARMA ANNOUNCES PUBLICATION ON NEXT GENERATION IMMUNOTHERAPIES TARGETING THE ADENOSINE PATHWAY IN "CELL REPORTS"

- *The production of adenosine via CD39 and CD73 enzymes participates in an immunosuppressive tumor microenvironment.*
- *Perrot et al. generated two antibodies, IPH5201 and IPH5301, targeting human CD39 and CD73, respectively.*
- *In vitro and in vivo data support the use of anti-CD39 and anti-CD73 mAbs in combination cancer therapies.*

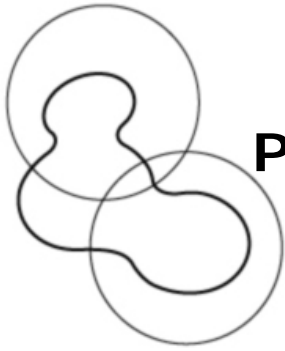
Marseille, France, May 23, 2019, 7:00 AM CEST

Innate Pharma SA (the "Company" - Euronext Paris: FR0010331421 – IPH) today announced a publication in *Cell Reports* describing two new monoclonal antibodies, IPH5201 and IPH5301, that target CD39 and CD73, respectively, to inhibit the adenosine pathway and promote activation of the immune system against cancer. The full manuscript, titled "Blocking antibodies targeting the CD39/CD73 immunosuppressive pathway unleash immune responses in combination cancer therapies" appeared in the online issue of *Cell Reports* on May 21st, 2019.

Cancer immune evasion largely involves the generation of high amounts of immunosuppressive adenosine (Ado) within the tumor environment. An increase in CD39 and CD73 at the tumor bed signals an immunosuppressive environment inhibiting anti-tumor immune responses and favoring tumor spreading. The impact of blocking CD39 and CD73 ectoenzymes to overcome Ado-mediated immunosuppression and to reinforce anti-tumor immunity has been investigated by combining genetic and antibody-mediated approaches.

The work published by Innate Pharma and collaborators shows that CD39 deficiency enhances the benefits from combined cancer therapies in preclinical mouse solid tumor models. We report the generation and characterization of two blocking antibodies against human CD39 and CD73, referred to as IPH5201 and IPH5301, respectively. The anti-CD39 antibody IPH5201 blocked ATP hydrolysis by both membrane and soluble CD39, thereby promoting DC maturation and macrophage activation, whereas the anti-CD73 antibody IPH5301 blocked the degradation of AMP into immunosuppressive Ado and displays different functional characteristics over currently used antibodies. Both IPH5201 and IPH5301 prevented the Ado-mediated inhibition of T cells purified from patients with breast cancer or melanoma. We also observed that IPH5201 efficiently increased the anti-tumor activity of the ATP-inducing chemotherapeutic drug oxaliplatin in a mouse tumor model. These data provide the scientific rationale for the clinical development of IPH5201 and IPH5301 and their use in cancer immunotherapy.

"The published data continue to support our rationale to evaluate IPH5201 and IPH5301 in cancer, particularly if these antibodies are used in combination with each other, with immune



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checkpoint inhibitors or with chemotherapies”, commented Pr. Eric Vivier, Innate Pharma CSO. “We are excited to further explore the potential of these antibodies as an innovative and differentiated approach to reverse immunosuppression in the tumor microenvironment and expect INDs to be filed for IPH5201 in the second half of 2019 and for IPH5301 in the first half of 2020.”

In October 2018, Innate Pharma and AstraZeneca entered into a development collaboration and option agreement for further co-development and co-commercialization for IPH5201.

Reference

Ivan Perrot, Henri-Alexandre Michaud, Marc Giraudon-Paoli, Séverine Augier, Aurélie Docquier, Laurent Gros, Rachel Courtois, Cécile Déjou, Diana Jecko, Ondine Becquart, Hélène Rispaud-Blanc, Laurent Gauthier, Benjamin Rossi, Stéphanie Chanteux, Nicolas Gourdin, Beatrice Amigues, Alain Roussel, Armand Bensussan, Jean-François Eliaou, Jérémy Bastid, François Romagné, Yannis Morel, Emilie Narni-Mancinelli, Eric Vivier, Carine Paturel, and Nathalie Bonnefoy. **Blocking Antibodies Targeting the CD39/CD73 Immunosuppressive Pathway Unleash Immune Responses in Combination Cancer Therapies.** *Cell Reports*, May 21, 2019.

About Innate Pharma:

Innate Pharma S.A. is a commercial stage oncology-focused biotech company dedicated to improving treatment and clinical outcomes for patients through therapeutic antibodies that harness the immune system to fight cancer.

Innate Pharma’s commercial-stage product, Lumoxiti, in-licensed from AstraZeneca, was approved by the FDA in September 2018. Lumoxiti is a first-in class specialty oncology product for hairy cell leukemia (HCL). Innate Pharma’s broad pipeline of antibodies includes several potentially first-in-class clinical and preclinical candidates in cancers with high unmet medical need.

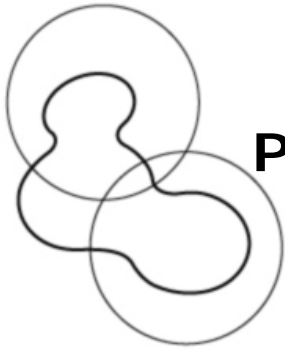
Pioneer in the biology of NK cell, Innate Pharma has expanded its expertise in the tumor microenvironment and tumor-antigens, as well as antibody engineering. This innovative approach has resulted in a diversified proprietary portfolio and major alliances with leaders in the biopharmaceutical industry including Bristol-Myers Squibb Novo Nordisk A/S, Sanofi, and a multi-products collaboration with AstraZeneca.

Based in Marseille, France, Innate Pharma is listed on Euronext Paris.

Learn more about Innate Pharma at www.innate-pharma.com

Information about Innate Pharma shares:

ISIN code	FR0010331421
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Disclaimer:

This press release contains certain forward-looking statements. Although the company believes its expectations are based on reasonable assumptions, these forward-looking statements are subject to numerous risks and uncertainties, which could cause actual results to differ materially from those anticipated. For a discussion of risks and uncertainties which could cause the company's actual results, financial condition, performance or achievements to differ from those contained in the forward-looking statements, please refer to the Risk Factors ("Facteurs de Risque") section of the *Document de Reference* prospectus filed with the AMF, which is available on the AMF website (<http://www.amf-france.org>) or on Innate Pharma's website.

This press release and the information contained herein do not constitute an offer to sell or a solicitation of an offer to buy or subscribe to shares in Innate Pharma in any country.

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