Hack4Hope: Together for Children with Cancer

- The first-ever hackathon focused on the challenges of childhood cancer organized by the PSCC and its Childhood Cancer Working Group.
- 3 winners among 20 applicants. TheraSonic won the 1st Jury Prize for its development of a non-invasive ultrasound device, offering a novel approach to penetrating the blood-brain barrier for brain tumor treatments.

On November 22nd, the Paris-Saclay Cancer Cluster (PSCC) and its Childhood Cancer Working Group (Imagine for Margo, LifeArc, Sanofi, ITCC, Institut Gustave Roussy, Institut Curie, Servier, ITCC-P4, and Owkin) hosted Hack4Hope, the first hackathon dedicated to tackling major challenges in childhood cancer. This event received the institutional support of the Health Innovation Agency, in charge of the implementation of the French Health Innovation Plan for 2030. This plan provides substantial investments for bioclusters such as the PSCC, in the aim to create international hubs of reference in their domain. Taking place at Futur4care in Paris, this one-of-a-kind event brought together an inspiring community of researchers, clinicians, biotech experts, and patient advocates, all committed to making a difference in the care and treatment of young cancer patients.

Despite significant medical advances, cancer remains the second leading cause of death by disease among children worldwide. Each year, approximately **400,000 new cancer cases** (In France, nearly **2,500**) are **diagnosed globally in children and adolescents under 20**, making them the leading cause of death by disease in children aged one and above. While

overall survival rates for some cancers have reached **80%**, aggressive types such as brain tumors, sarcomas, and high-risk leukemias still show limited progress, underlining the urgent need for innovative solutions to improve diagnosis, treatment, and care.

Hack4Hope aims to speed up progress by bringing together pioneering innovators across various fields, from diagnostics to treatment, as well as quality of life during and after treatment, including the use of AI and digital technologies to tackle complex clinical and biological questions, and ultimately advance care for paediatric cancer patients.

Eric Vivier president of the PSCC shared, "*Hack4Hope captures our commitment to collaboration and innovation to offer a brighter future for kids fighting cancer. By bringing these brilliant minds together around this challenge, we're creating an environment where each idea can make a real difference in the lives of thousands of children and their families.*"

The winning projects include:

- 1st - TheraSonic, who is developing a non-invasive ultrasound device to temporarily open the blood-brain barrier for brain tumor treatments
- 2nd (and awarded by the audience) - DeepLife, who is an IT Tech company developing a Digital Twin technology to analyze single-cell data and other datasets to support drug discovery
- 3rd - HEPHAISTOS-Pharma, who is *developing a new generation of an immune sensor modulator in oncology*

In addition, the Family Prize was awarded to Vesynta, a UK-based HealthTech company developing a PK/PD tool (DosoLogic) to optimize dosing of pediatric cancer medicines, selected by patient advocates and supported by Imagine for Margo - Children without Cancer.

Out of a strong field of applicants, 10 outstanding projects were selected to compete in *Hack4Hope*, each addressing critical areas of childhood cancer care. These projects showcased a wide range of innovative solutions, from **drug discovery**, where teams presented new therapeutic compounds

specifically aimed at paediatric cancer, to **cancer therapies** that focus on innovative ways to treat aggressive tumours. Other teams explored **regenerative medicine**, looking for ways to restore or replace damaged tissues to help young patients recover more fully while reducing long-term side effects. **Drug delivery** projects showcased targeted systems designed to allow medication to go directly to where it's needed, while minimizing effects on healthy tissue.

The area of **clinical trials** also saw strong representation, with innovative methods to make trials safer, faster, and more accessible for children. Finally, **AI applications in healthcare** highlighted the transformative potential of artificial intelligence, from improving diagnostic accuracy to personalizing treatment plans based on each child's unique medical data. The pre-selection of the 10 competing projects was based primarily on projects that would have the greatest impact in children and adolescents affected by cancer.

The event received strong support from key organizations, including Foundation S, Life Arc, and Imagine for Margo, exemplifying the power of collaboration in moving care forward for children with cancer.

For more on Hack4Hope's projects and outcomes, visit the PSCC website or contact Alice de Queylard at alice.dequeylard@parissaclaycancercluster.org

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About the Paris-Saclay Cancer Cluster (PSCC):
The Paris-Saclay Cancer Cluster is advancing the pace of oncology innovation, making it more predictive, precise, and effective. This cluster facilitates exchanges within the cancer community and provides Europe's most promising researchers with access to expertise, tools, and services, including mentorship, data, laboratory access, and funding.

About the Childhood Cancer Working Group:
The PSCC Childhood Cancer Working Group unites a diverse set of stakeholders (Imagine for Margo, LifeArc, Sanofi, ITCC, Institut Gustave Roussy, Institut Curie, Servier, ITCC-P4, and Owkin)—patient organizations and advocacy groups, industry, academia, and biotech-/startups—to share knowledge and accelerate the

development of new solutions to better diagnose, treat and support the children and their families in their fight againt cancer.

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