



BRENUS Pharma unveils groundbreaking preclinical results for STC-1010¹, a promising new drug candidate targeting Colorectal Cancer & Solid Tumors.

At the Annual Conference of the [American Association for Cancer Research](#) (AACR), in Orlando (Florida) from April 14th to 19th,

Lyon (69), April 27th, 2023, Brenus Pharma Announces two groundbreaking presentations on STC-1010, the company's first drug candidate for colorectal cancer (CRC), produced by [Brenus Pharma's STC \(Stimulated Tumor-Cells\) Technology Platform](#).

Innovative models for anti-tumor vaccine development were highlighted: [Inovotion's](#) CAM (*chorioallantoic model*) *in-ovo* assay and [Explicityte's](#) ex-vivo co-cultured assay, were used to **characterize the mechanism of action through a specific immune response, and validate the anti-tumor effects of STC-1010.**

These models comply with the FDA's modernization act 2.0 S. 5002 and **demonstrate the potential of STC-1010 in clinical settings for the treatment of patients with colorectal cancer.**

The first study evaluated the safety and efficacy of STC-1010 in activating the antitumoral immune response against human colorectal adenocarcinoma using the chicken CAM assay. Results obtained *in-ovo* **confirmed the anti-tumor efficacy** -mediated by cytokine secretion and T cells expansion- **of the vaccine previously observed in CRC syngeneic mouse models. Dendritic cells (DCs) primed by STC-1010 will induce a multi specific pool of T-lymphocytes against the tumor without toxicity.**

Compared to negative control, STC-1010 vaccine induced:

- Significant increase of **IL-12 and IL-2 secretion** in peripheral blood during the generation of all three batches of PBMCs, confirming previous results (IL-12: +52%, p=0.0003; IL-2: +482%, p=0.0033); ([Fig.1](#))
- A significant expression of **IFN-gamma in tumor** (+130,83%, p=0.0185); ([Fig.1](#))
- A tendency to increase infiltrating cells: **CD4+**: +79,2%, **CD8+**: +29,4%, Perforin: +105,5%, TNFα : +78,63% confirmed by immunohistochemistry and translated into a significant increase of **tumor necrosis** (p = 0.0267); ([Fig2.](#))
- A tendency of **metastasis regression** (-49%).
- With **no embryonic toxicity/mortality** (daily evaluation of embryonic viability) induced by STC-1010.

¹ STC-1010 is a next-generation cancer vaccine immunotherapy that targets tumor antigens and is produced by Allogeneic STC's proprietary Brenus platform. Its the lead candidate specifically designed to combat colorectal cancer (CRC) in its first line of treatment for the first indication, including MSS and MSI-H populations.

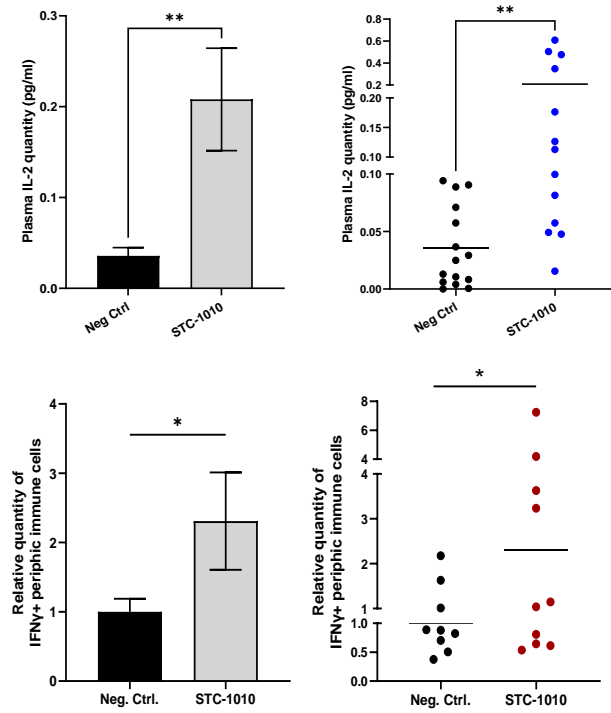


Fig 1. Effect of STC-1010 on cytokine released (IL-2, INF γ) – peripheric blood

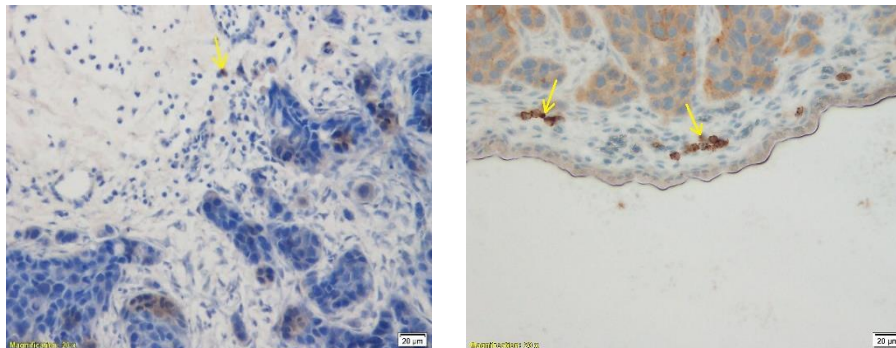


Fig 2. CD8+ (Left) and CD4(+) T-Cells (right) infiltration (yellow arrows) in tumor treated with STC-1010 activated PBMCs (Objective Magnification x20)

The second study evaluated the functional activity of STC-1010-primed dendritic cells (DCs) from human PBMCs (Peripheral Blood Mononuclear Cell) donors' isolation, to activate autologous CD8+ T cells and promote tumor cell death. The study evaluated the cross-priming and specificity of the immune response induced by STC-1010. Results showed that **STC-1010 is an efficient strategy to educate the immune system by cross-priming DCs and increasing the activity of specific CD8+ T cells (TCR sequencing) all of which promotes the significant tumor killing observed ex-vivo.**

Compared to negative control, STC-1010 vaccine induced:

- Significant production of **IL-8 and IL-12**, and reduced IL-10 during DCs maturation. (*Fig.3*)
- In addition, dendritic cells (DCs) exposed to STC-1010 during the maturation enhanced significantly **IFN-gamma** production by **CD8+ T cells** ($p=0,06$ for donor 1 and $p=0,0004$ for donor 2) and amplified their anti-tumor activity
- CD8+ T cells primed with STC-1010-treated DCs **promote massive tumor killing via apoptosis of human CRC cell line** (HCT116 and HT29) compared to the condition without STC-1010 ($p<0,001$ for all donors). (*Fig.4*)

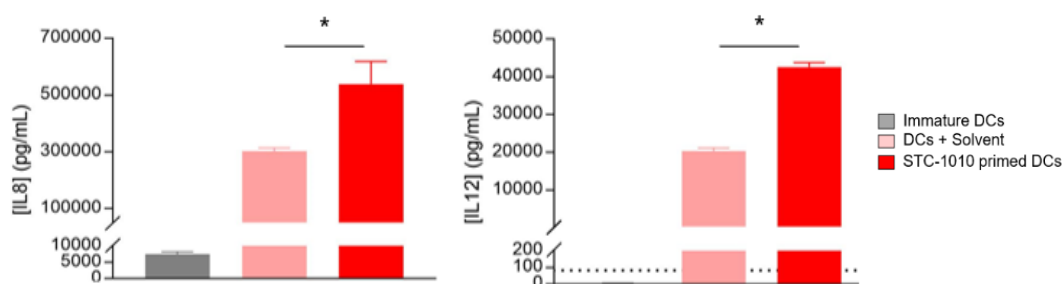


Fig 3. Effect of STC-1010 on cytokine released (IL-8,IL-12) by DCs

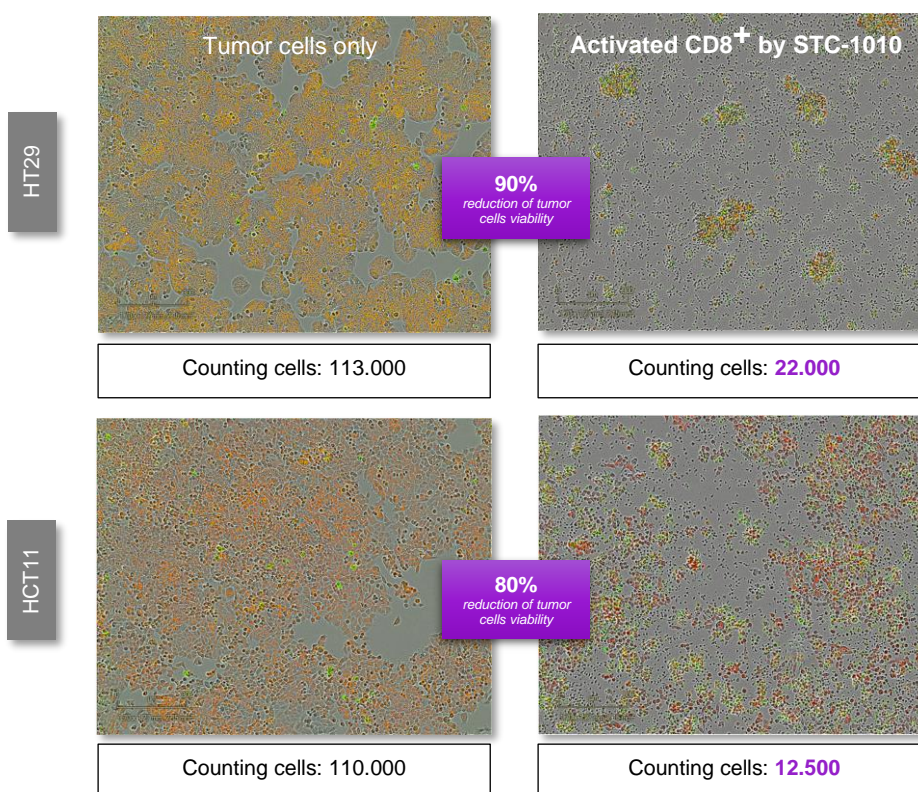


Fig 4. Real-time cell monitoring (48h) of NucRed HCT-116 & HT-29 tumor cells killing by DC-primed CD8+

Taken together, these studies provide promising results for the development of the STC-1010 and prove its potential to be presented into clinical setting for the treatment of patients with colorectal cancer.

Innovative *in vivo* model for anti-tumor vaccine development: Safety validation and preliminary efficacy evaluation of a new antitumor vaccine STC-1010 on human colorectal adenocarcinoma using the chicken CAM assay.

Session Title: **Clinical Research Excluding Trials – Vaccines**

Abstract Presentation Number: **6791**

- Yan WANG, yan.wang@inovotion.com Scientist/R&D Project Manager² (PhD)
- Arnaud PEYRONNIER, arnaud.peyronnier@inovotion.com, Sales Director⁴ (MSc)
- Benoit PINTEUR, bpinteur@brenus-pharma.com, Chief Scientific Officer³ (Pharm D)
- Lionel CHALUS, lchalus@brenus-pharma.com, Chief Scientific Officer⁵
- Corinne TORTORELLI, ctortorelli@brenus-pharma.com, Medical Lead⁵ (Pharm. D., Ph.D)
- Paul BRAVETTI, pbravetti@brenus-pharma.com, Chief Executive Officer⁵ (Pharm D, MSc)
- Jean VIALLET, jean.viallet@inovotion.com, Chief Executive Officer⁴ (PhD)
- François GHIRINGHELLI FGhiringhelli@cqfl.fr, Head of Team Inserm 1231 TIRECs « Therapies and Immune REsponse in CancerS », Director of early clinical unit CLIPP2, Professor of Oncology⁴ (M.D, PhD)

STC-1010 a new therapeutic vaccine promotes tumor cell death.

Session Title: **Late-Breaking Research: Immunology 2**

Abstract Presentation Number: **LB224**

- Alban BESSEDE, a.bessede@explicityte.com, Chief Executive Officer⁵ (Ph.D)
- George ALZEEB, galzeeb@brenus-pharma.com, Scientific Project Manager⁵ (Ph.D)
- Corinne TORTORELLI, ctortorelli@brenus-pharma.com, Medical Lead⁵ (Pharm.D., Ph.D)
- Jean-Philippe GUEGUAN, jp.quequan@explicityte.com, Study Director⁷
- Christophe REY, c.rey@explicityte.com⁷
- Lionel CHALUS, lchalus@brenus-pharma.com, Chief Scientific Officer⁵
- Benoit PINTEUR, bpinteur@brenus-pharma.com, Chief Scientific Officer⁵ (Pharm D)
- Paul BRAVETTI, pbravetti@brenus-pharma.com, Chief Executive Officer⁵ (Pharm D, MSc)
- Antoine ITALIANO, a.italiano@bordeaux.unicancer.fr, Early Phase Trials and Sarcoma Units,⁶(M.D, Ph.D)

For further information:

<https://www.brenus-pharma.com/>

<https://explicityte.com/>

<https://www.inovotion.com/>

CONTACT BRENUS

Marion Brun

Communication Manager

contact@brenus-pharma.com

+ 33 (0)7 87 76 87 72

² Inovotion Biopolis- 5 av du Grand Sablon, 38700 La Tronche, France

³ Brenus Pharma Parc industriel Tech Lavaur La Bechade 63 500 Issoire, France

⁴ Center Georges François Leclerc, 1 rue du Pr Marion 21000 Dijon, France

⁵ Explicityte 229 Cours de l'Argonne, 33000 Bordeaux

⁶ Institut Bergonie 229 Cours de l'Argonne, 33000 Bordeaux