The HER2+IHC protocol incorporated correlative immune analysis as endpoints (other safety and efficacy endpoints were also included, not shown). Data supporting blinded endpoints are presented here:

SECONDARY ENDPOINTS (IMMUNE RELATION)

- Immunologic response of CD8 cells to TIL/PACF
- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

MD, Neal D. Shore

Background

Barclay-Coulter-Grier (BCG), is an intravesical immunotherapy which remains the mainstay of non-muscle invasive bladder cancer (NMIBC) treatment since 1937. With adequate surgical resection and adjuvant BCG treatment, 50-
40% of diagnosed T1G2 and T1G3 patients will recur disease free within 3 years. The current model of BCG’s mechanism of action (MOA) proposes direct cytolysis of the urothelium (injury) and an indirect effect by immune stimulation. Given the MOA, targeting T-cell activation strategies with BCG could potentially enhance the efficacy of BCG.

In this study, we performed a Phase 2 trial in combination with BCG in NMIBC. The study was designed to evaluate the safety and tolerability of three different treatment regimens: monotherapy BCG, combination CD8+ Vaccine therapy, and BCG + CD8+ Vaccine therapy. In addition, we evaluated the immune response of the CD8+ cell population in terms of quantity and quality.

Monotherapy BCG

CD8+ Vaccine Therapy

BCG + CD8+ Vaccine Therapy

Clinical Efficacy (1-Year Recurrence Free Survival)

Resource Free Survival by Immune Response

Vaccine patients and healthy controls (HC) were tested in parallel to evaluate the immune response. The immune response was measured by the percentage of PMN in the BCG lysate and the total number of spots per 10^6 PBMC.

Immunologic response of CD8 cells to TIL/PACF

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Clinical Efficacy (1-Year Recurrence Free Survival)

Resource Free Survival by Immune Response

Vaccine patients and healthy controls (HC) were tested in parallel to evaluate the immune response. The immune response was measured by the percentage of PMN in the BCG lysate and the total number of spots per 10^6 PBMC.

Immunologic response of CD8 cells to TIL/PACF

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Clinical Efficacy (1-Year Recurrence Free Survival)

Resource Free Survival by Immune Response

Vaccine patients and healthy controls (HC) were tested in parallel to evaluate the immune response. The immune response was measured by the percentage of PMN in the BCG lysate and the total number of spots per 10^6 PBMC.

Immunologic response of CD8 cells to TIL/PACF

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Clinical Efficacy (1-Year Recurrence Free Survival)

Resource Free Survival by Immune Response

Vaccine patients and healthy controls (HC) were tested in parallel to evaluate the immune response. The immune response was measured by the percentage of PMN in the BCG lysate and the total number of spots per 10^6 PBMC.

Immunologic response of CD8 cells to TIL/PACF

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Clinical Efficacy (1-Year Recurrence Free Survival)

Resource Free Survival by Immune Response

Vaccine patients and healthy controls (HC) were tested in parallel to evaluate the immune response. The immune response was measured by the percentage of PMN in the BCG lysate and the total number of spots per 10^6 PBMC.

Immunologic response of CD8 cells to TIL/PACF

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)

Immunologic response of PD1+CD8+ T cells

- CD8 cell proliferation (Ki67 staining)
- Immunologic response of PD1+CD8+ T cells
- CD8+ cell staining
- CD8+ cell proliferation (Ki67 staining)