IMMUNOTHERAPY IN THE TREATMENT OF CERVIX CANCER

Linda Mileshkin, Medical Oncologist
Peter MacCallum Cancer Centre, Melbourne Australia
Distinguishing “self” from “non-self”

- T cells trained in the thymus as a child
- Millions of variations of T cell receptors tested
- If TCR binds to “self” then T cell retrained or eliminated
- Only 3% of T cells survive this process
- Remaining TCRs should only respond to “non-self”
- T cells roam the body waiting to recognise “non-self” antigens
Cancer and immune system

Schreiber RD, Cancer Immunol Res 2005
Immune System and Cancer

• 20\textsuperscript{th} century “immune surveillance”
  – Tumour antigens treated as foreign antigens
  – Natural response of immune system is to survey the body for tumours and eliminate them

• 21\textsuperscript{st} century “immune tolerance”
  – Tumour antigens treated as self antigens
  – Natural response of immune system to tumour antigens is tolerance

Goal is to \textit{overcome tolerance}
Immune Tolerance

Regulatory immune cells
- Tregs
- MDSC

Inhibitory T cell co-receptors
- CTLA-4, PD-1, LAG-3, etc.

Immunosuppressive cytokines
- IL-6, IL-10, TGF-β, VEGF

Solution: ex vivo manipulation of anti-tumor immune cells and ACT

Solution: systemic blockade of inhibitory cytokines or co-inhibitory receptors/ligands
Cervix cancer as a target for immunotherapy: HPV

- Major capsid protein
- Minor capsid protein
- L1
- L2
- E6
- E7
- E1
- E4
- E2
- E5

- LCR
- Degradation p53
- Degradation pRB
- Genome replication

- Frequently disrupted site in case of integration into host genome
- Genome replication
  Transcription factor of E6 and E7
Progression to Cancer is Accompanied by Deregulation of Viral Gene Expression

Common molecular events:
- Viral genome integration into cellular DNA
- Loss of E2 leads to increased E6/E7 expression
- Loss of L1, L2 expression. Therefore, current vaccine can’t clear pre-cancerous lesions.
Cervix Cancer: Mutation burden intermediate but potentially still responsive to immunotherapy because of HPV (viral antigen)

Alexandrov Nature 2013
Immune Tolerance

Regulatory immune cells
- Tregs
- MDSC

Inhibitory T cell co-receptors
- CTLA-4, PD-1, LAG-3, etc.

Immunosuppressive cytokines
- IL-6, IL-10, TGF-β, VEGF

Solution: ex vivo manipulation of anti-tumor immune cells and ACT

Solution: systemic blockade of inhibitory cytokines or co-inhibitory receptors/ligands
Passive Immunotherapy

- **Adoptive Cellular Transfer (ACT)**

- Pts have T cells capable of recognizing antigens expressed by tumours (e.g. TILs)

- These cells can attack tumours ex vivo

- Pull T cells out of the tumour, activate in vitro, reinfuse to patient
Complete Regression of Metastatic Cervical Cancer After Treatment With Human Papillomavirus–Targeted Tumor-Infiltrating T Cells

Sanja Stevanović, Lindsey M. Draper, Michelle M. Langhan, Tracy E. Campbell, Mei Li Kwong, John R. Wunderlich, Mark E. Dudley, James C. Yang, Richard M. Sherry, Udai S. Kammula, Nicholas P. Restifo, Steven A. Rosenberg, and Christian S. Hinrichs

See accompanying editorial on page 1521

Abstract

Purpose
Metastatic cervical cancer is a prototypical chemotherapy-refractory epithelial malignancy for which better treatments are needed. Adoptive T-cell therapy (ACT) is emerging as a promising cancer treatment, but its study in epithelial malignancies has been limited. This study was conducted to determine if ACT could mediate regression of metastatic cervical cancer.

Patients and Methods
Patients enrolled onto this protocol were diagnosed with metastatic cervical cancer and had previously received platinum-based chemotherapy or chemoradiotherapy. Patients were treated with a single infusion of tumor-infiltrating T cells selected when possible for human papillomavirus (HPV) E6 and E7 reactivity (HPV-TILs). Cell infusion was preceded by lymphocyte-depleting chemotherapy and was followed by administration of aldesleukin.

Results
Three of nine patients experienced objective tumor responses (two complete responses and one partial response). The two complete responses were ongoing 22 and 15 months after treatment, respectively. One partial response was 3 months in duration. The HPV reactivity of T cells in the infusion product (as measured by interferon gamma production, enzyme-linked immunospot, and CD137 upregulation assays) correlated positively with clinical response ($P = .0238$ for all three assays). In addition, the frequency of HPV-reactive T cells in peripheral blood 1 month after treatment was positively associated with clinical response ($P = .0238$).

Conclusion
Durable, complete regression of metastatic cervical cancer can occur after a single infusion of HPV-TILs. Exploratory studies suggest a correlation between HPV reactivity of the infusion product and clinical response. Continued investigation of this therapy is warranted.

J Clin Oncol 33:1543-1550. Published by the American Society of Clinical Oncology
Active Immunotherapy

• Reverse immune tolerance in situ to promote recognition of endogenous tumour antigens and facilitate tumour rejection

• More generic approach but can target multiple tumour antigens

1. Therapeutic vaccines: ongoing active research in cervix cancer

2. T cell modulators (2011+)
   – Ipilimumab
   – Anti PD-1/L1
   – Many many more.....
AXAL: a live, attenuated, nonpathogenic, bioengineered \textit{Lm}-LLO immunotherapy for treatment of HPV-associated cancers

\textbf{Lm Technology™ Overview:}
Harnessing Unique Life Cycle of \textit{Lm} in APCs

- \textit{Lm}-LLO agent taken up only by phagocytic dendritic cells/APCs
- \textit{Lm}-LLO stimulates a strong innate multipathway immune response (eg. STING) in APC
- \textit{Lm}-LLO expresses LLO-TAA fusion protein, which is processed by stimulated APC and activates TAA-specific T-cells
- Robust T-cell response generated toward TAA, allowing tumor-specific immune response
- Immune activation can overcome checkpoint inhibition and negative regulators of cellular immunity
PHASE 2 trial

GOG/NRG-0265: Study design and eligibility

- N = ~63; Simon two-stage design
- ≥18 years
- Persistent/recurrent metastatic (PRmCC) squamous/non-squamous cervical cancer
- ≥1 prior line of systemic-dose therapy for PRmCC, excluding that received as a component of primary curative treatment
- Prior bevacizumab allowed, but not required
- GOG PS 0/1
- Measurable disease ≥1 target lesion (RECIST 1.1)

AXAL Monotherapy
1 × 10⁹ CFU × 3 doses* q 28 days
(month 1, 2, 3) as a 250-mL Infusion over 60 min

Treatment

Follow-up

AXAL Day 0
AXAL Day 28
AXAL Day 56

Co-primary Endpoints:
- 12-month survival rate
- Tolerability/safety of AXAL

Secondary Endpoints:
- PFS
- OS
- ORR

¹N = total 54 enrolled, as a result of clinical hold interruption during Stage 2.
²Stage 2 amended to allow continuous (>3) dosing of AXAL.
AXAL, axalimogene filolisbac; CFU, colony-forming units; GOG PS, Gynecologic Oncology Group performance status; HPV, human papillomavirus; ORR, objective response rate; OS, overall survival; PFS, progression-free survival; PRmCC, persistent/recurrent metastatic cervical cancer; RECIST, Response Evaluation Criteria In Solid Tumors.
12-month and median overall survival

Number of patients: 50
Events: 42 (84%)
Censored: 8 (16%)
Median OS: 6.2 months
95%CI: (4.4–12.3)

- Represents a 52% improvement vs logistic model-predicted milestone survival rate of 24.5%
- The probability of this survival advantage being detected by chance vs a true treatment effect was 0.02
- 8 patients remain alive as of January 31, 2017

12-month OS rate: 38%, range 12.02–40.6 months (n = 19/50; primary endpoint)

No. at risk:
50 47 35 25 22 19 13 9 4 3 3 3 3 3 3 2 1 1 1 1 1 1 1 0

CI, confidence interval; OS, overall survival.
AIM2CERV/GOG 3009

- High Risk, Locally Advanced Cervical Cancer
- FIGO Stage I-II with positive pelvic nodes
- FIGO Stage III-IVA
- Any Figo Stage with para-aortic nodes

Randomization 1:2 Reference and Treatment Groups

- Reference Group
  - Placebo IV
  - Up to 1 yr

- Treatment Group
  - ADXS-HPV (1 x 10^9 cfu)
  - Up to 1 yr

Follow-up for Overall Survival

Baseline tumor imaging must be performed within 28 days prior to the first study treatment infusion

Primary Objective is Progression Free Survival
T-cell immune checkpoints

Activation (cytokines, lysis, proliferation, migration to tumor)

CTLA-4 Blockade (ipilimumab)

PD-1 Blockade (nivolumab, pembrolizumab)
Ipilimumab in cervix cancer: Phase 1/2

- 42 patients with measurable disease progression and prior platinum exposure
- 4 cycles if Ipilimumab (3-10mg/kg) every 21 days followed by 4 maintenance cycles every 12 weeks
- 35 had prior RT and 21 had 2-3 prior regimens
- “Manageable” toxicities: Grade 3 diarrhoea (x4) and grade 3 colitis (x3)
- No CRs but 3 partial responses
- Median PFS was 2.5 months

Lheureux L, ASCO annual meeting 2015
KEYNOTE-028 (NCT02054806): Phase 1b Multicohort Study of Pembrolizumab for PD-L1–positive Advanced Solid Tumors

- Patients
  - Unresectable or metastatic cervical cancer
  - Failure of or inability to receive standard therapy
  - ECOG PS 0 or 1
  - Measurable disease (RECIST v1.1)
  - PD-L1 positive†

- Pembrolizumab
  - 10 mg/kg IV Q2W

- Response Assessment†
- Complete response, partial response, or stable disease
- Treat for 24 months, or until progression§ or intolerable toxicity
- Confirmed progressive disease§ or unacceptable toxicity
- Discontinue pembrolizumab

†Response assessment: Every 8 weeks for the first 6 months; every 12 weeks thereafter
Primary end points: ORR per RECIST v1.1 and safety
Secondary end points: PFS, OS, duration of response

§Membranous PD-L1 expression in ≥1% of tumor or stromal cells using a prototype immunohistochemistry assay and 22C3 antibody (Merck). §Clinically stable patients were allowed to remain on pembrolizumab until progressive disease was confirmed on a second scan performed 4 weeks later. Patients who experienced progression after discontinuing pembrolizumab were eligible for up to 1 year of additional treatment if no other anticancer therapy was received.

Presented By Jean-Sebastien Frenel at 2016 ASCO Annual Meeting
## Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic, n (%)</th>
<th>N = 24</th>
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</thead>
<tbody>
<tr>
<td>Median age, years (range)</td>
<td>41 (26–62)</td>
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<tr>
<td>Race, n (%)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>15 (63)</td>
</tr>
<tr>
<td>Asian</td>
<td>1 (4)</td>
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<tr>
<td>Not specified</td>
<td>8 (33)</td>
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<tr>
<td>ECOG performance status of 1, n (%)</td>
<td>18 (75)</td>
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<tr>
<td>Histology, n (%)</td>
<td></td>
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<tr>
<td>Squamous cell carcinoma</td>
<td>23 (96)</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Metastatic stage, n (%)</td>
<td></td>
</tr>
<tr>
<td>MX</td>
<td>1 (4)</td>
</tr>
<tr>
<td>M0</td>
<td>6 (25)</td>
</tr>
<tr>
<td>M1</td>
<td>15 (63)</td>
</tr>
<tr>
<td>Unknown</td>
<td>2 (8)</td>
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<table>
<thead>
<tr>
<th>Characteristic, n (%)</th>
<th>N = 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior radiotherapy</td>
<td>23 (96)</td>
</tr>
<tr>
<td>Prior lines of therapy for advanced disease</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9 (38)</td>
</tr>
<tr>
<td>2</td>
<td>6 (25)</td>
</tr>
<tr>
<td>≥3</td>
<td>9 (38)</td>
</tr>
<tr>
<td>Prior platinum</td>
<td>23 (96)</td>
</tr>
<tr>
<td>Prior bevacizumab</td>
<td>10 (42)</td>
</tr>
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</table>
Antitumor Activity (RECIST v1.1, Investigator Review)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
<th>95% CI</th>
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</thead>
<tbody>
<tr>
<td>ORR†</td>
<td>4</td>
<td>17</td>
<td>5–37</td>
</tr>
<tr>
<td>Partial response</td>
<td>4</td>
<td>17</td>
<td>5–37</td>
</tr>
<tr>
<td>Stable disease</td>
<td>3</td>
<td>13</td>
<td>3–32</td>
</tr>
<tr>
<td>Progressive disease</td>
<td>16</td>
<td>67</td>
<td>45–84</td>
</tr>
<tr>
<td>No assessment‡</td>
<td>1</td>
<td>4</td>
<td>&lt;1–21</td>
</tr>
</tbody>
</table>

N = 24

Data cutoff date: Feb 17, 2016. Only confirmed responses are included. Patients who received ≥1 dose of pembrolizumab and had a baseline scan with measurable disease per RECIST v1.1 are included. There were no complete responses. †Patient did not have a postbaseline response evaluation.
C

Nonresponder
Responder

+20% Tumor increase

-30% Tumor reduction

Change From Baseline (%)

Time (months)

+100
+80
+60
+40
+20
0
-20
-40
-60
-80
-100

Presented By Jean-Sebastien Frenel at 2016 ASCO Annual Meeting, Published JCO Dec 2017
Treatment Exposure and Duration of Response in Responders (RECIST v1.1, Investigator Review)

- Median time to response: 8 weeks (range, 8–36)
- Median response duration\(^\dagger\): 26 weeks (range, 18–52)

Toxicities as expected with no new safety signals

Presented By Jean-Sebastien Frenel at 2016 ASCO Annual Meeting
## Best Overall Response

**CheckMate 358: Nivolumab Monotherapy in R/M Cervical, Vaginal, and Vulvar Cancers**

<table>
<thead>
<tr>
<th></th>
<th>All patients (N = 24)</th>
<th>Cervical (n = 19)</th>
<th>Vaginal/Vulvar (n = 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best overall response, n (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete response</td>
<td>1 (4.2)</td>
<td>1 (5.3)</td>
<td>0</td>
</tr>
<tr>
<td>Partial response</td>
<td>4 (16.7)</td>
<td>4 (21.1)</td>
<td>0</td>
</tr>
<tr>
<td>Stable disease</td>
<td>12 (50.0)</td>
<td>8 (42.1)</td>
<td>4 (80.0)</td>
</tr>
<tr>
<td>Progressive disease</td>
<td>7 (29.2)</td>
<td>6 (31.6)</td>
<td>1 (20.0)</td>
</tr>
<tr>
<td><strong>ORR, n (%) [95% CI]</strong></td>
<td>5 (20.8) [7.1, 42.2]</td>
<td>5 (26.3) [9.1, 51.2]</td>
<td>0 [0.0, 52.2]</td>
</tr>
<tr>
<td><strong>Disease control rate, n (%)</strong></td>
<td>17 (70.8)</td>
<td>13 (68.4)</td>
<td>4 (80.0)</td>
</tr>
<tr>
<td><strong>Duration of response, median (range), months</strong></td>
<td>NR(^a) (0.0–5.8+)</td>
<td>NR(^a) (0.0–5.8+)</td>
<td>NA</td>
</tr>
</tbody>
</table>

\(^a\)All responses ongoing as of the data cutoff

+ Ongoing response; CI = confidence interval; NA = not applicable; NR = not reached

**PD-L1 unselected patients**

Presented By Antoine Hollebecque at 2017 ASCO Annual Meeting
GOG 316 (R2810-ONC-1676)

- Recurrent, persistent, and/or metastatic cervical cancer
- Progressed within 6 months of the last dose of platinum

**RANDOMIZE**

REGN2810 350 mg Q3W, for up to 96 weeks

Physicians choice chemotherapy

- Pemetrexed 500 mg/m2 Q3W
- Topotecan 1 mg/m2 daily for 5 days, Q21 days
- Irinotecan 100 mg/m2 days 1, 8, 15, & 22, followed by 2 weeks rest (6-week cycle)
- Vinorelbine 30 mg/m2 days 1 & 8, Q21 days
- Gemcitabine 1000 mg/m2 on days 1 & 8, Q21 days

PI = Krishnansu S. Tewari, MD
N = 436
Primary Endpoint = OS

REGN2810, a fully human monoclonal antibody against programmed death-1 (PD-1)
### irRECIST (Immune-related Response Evaluation Criteria in Solid Tumours)

<table>
<thead>
<tr>
<th><strong>Category</strong></th>
<th><strong>Criteria</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bidimensional measurement of tumour burden, with up to 15 index lesions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Immune-related Complete Response</strong></td>
<td>All lesions gone</td>
</tr>
<tr>
<td><strong>Immune-related Partial Response</strong></td>
<td>A decrease in tumour burden of 50%. Can have progression of some lesions or the appearance of new lesions as long as the TOTAL tumour burden meets the response criterion</td>
</tr>
<tr>
<td><strong>Immune-related Stable Disease</strong></td>
<td>Not meeting above criteria OR progressive disease</td>
</tr>
<tr>
<td><strong>Immune-related Progressive Disease</strong></td>
<td>An increase in tumour burden of 25% of more relative to the nadir. Must be confirmed 4/52 later</td>
</tr>
</tbody>
</table>
Described in 10 – 15% of melanoma patients
Much less common in other tumour types: 1-3%

Nicshino et al. Nature Reviews Clinical Oncology 2017
Cancer Immunotherapy | Immunotoxicity

Table 1: Incidence of Immune-Related Adverse Events Associated With Ipilimumab and Pembrolizumab

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Ipilimumab (n = 1,498)%</th>
<th>Pembrolizumab (n = 411)%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal</td>
<td>All Grades 33%</td>
<td>Grade 3/4 9.1%</td>
</tr>
<tr>
<td>Dermatologic</td>
<td>45%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>1.6%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Renal</td>
<td>1.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Skin</td>
<td>1.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Neurologic</td>
<td>1.1%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Hematologic</td>
<td>1.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>1.1%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>1.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Urogenital</td>
<td>1.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Blood</td>
<td>1.6%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Champiat et al. Annals of Oncology 201
Tepley et al. Oncology 2014
Weber et al. JCO 2015
• Unless there is a good alternative diagnosis for inflammation, symptoms should be considered autoimmune in nature and treated as such.
• Most irAE are reversible provided vigilant monitoring and early treatment
  — *excludes most endocrinopathies which are rarely reversible
• Detailed treatment guidelines for management of irAE exist
  eg. Management of Immune-related adverse events in patients treated with immune checkpoint inhibitor therapy (ASCO Clinical Practice Guideline, JCO Feb 2018)
Choosing Candidate Biomarkers

- Candidate biomarkers include markers of a preexisting antitumor immune infiltrate that is observed in certain developing tumors
- Response to immunotherapy has been linked to an “inflamed” TME
  - Expression of PD-L1 and indoleamine, IFNγ production, M1 macrophages, and a robust T-cell infiltrate and fewer immunosuppressive cells such as M2 macrophages and myeloid-derived suppressor cells
- Gene signatures associated with T-cell–inflamed tumors have also predicted response
- Presence of tumor-infiltrating lymphocytes (TIL) in the TME is mechanistically a logical biomarker for T cell-based therapies

STILL A WORK IN PROGRESS! – PDL-1 staining probably not the answer

Presented By Elad Sharon at 2018 ASCO-SITC Clinical Immuno-Oncology Symposium
PD-L1 expression and cervix cancer

- Little published!
- Marijne Heeren et al, Modern Pathology 2016
- 156 SCC and 49 adenocarcinoma plus 31 primary and paired metastatic tumour samples
- 54% of SCC and 14% of adenocarcinoma were >5% PD-L1 positive
- No significant difference between primary and metastatic samples but some became positive
- Different staining patterns had different associations with survival times: diffuse, marginal, positive tumor infiltrating macrophages
Improving on the efficacy of single-agent PD-1

- Combinations with other checkpoint inhibitors
- Combinations with therapeutic vaccines
- Combinations with radiotherapy
- Combinations with cytotoxics
- Working out who to treat!
- Working out when to treat
Combined immunotherapy and radiation for treatment of mucosal melanomas of the lower genital tract

Maria B. Schiavone a, Vance Broach a, Alexander N. Shoushtari b,c, Richard D. Carvajal d,e, Kaled Alektiar c,f, Marisa A. Kollmeier c,f, Nadeem R. Abu-Rustum a,c, Mario M. Leitao Jr. a,c,*

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b Department of Medicine, Memorial Sloan Kettering Cancer Center, 1275 York Avenue, New York, NY, USA
c Weill Cornell Medical College, 1300 York Avenue, New York, NY, USA
d Experimental Therapeutics, Division of Hematology/Oncology, Columbia University Medical Center, 161 Fort Washington Avenue, New York, NY, USA
e Melanoma Service, Division of Hematology/Oncology, Columbia University Medical Center, 161 Fort Washington Avenue, New York, NY, USA
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A R T I C L E  I N F O

Article history:
Received 15 March 2016
Received in revised form 6 April 2016
Accepted 10 April 2016
Available online 14 April 2016

Keywords:
Gynecologic mucosal melanoma
Vaginal melanoma
Cervical melanoma
Ipilimumab
Immunotherapy
Radiation therapy

A B S T R A C T

Objective: To report our experience using ipilimumab, a monoclonal antibody targeting CTLA-4, combined with radiation therapy in women diagnosed with mucosal melanoma of the lower genital tract.

Methods: We retrospectively identified all patients who received ipilimumab with concurrent radiation treatment of mucosal melanoma of the lower genital tract at Memorial Sloan Kettering Cancer Center from 2012 to 2015. Various clinicopathologic data and treatment response were abstracted and analyzed.

Results: Four patients were identified. Median age was 61.5 years (range 44–68); 3 were diagnosed with vaginal melanoma, 1 with cervical melanoma. All would have required extensive surgical procedures to remove entirety of disease. Median size of lesions was 4.7 cm (range, 3.3–5.3); all were Ballantyne stage I. Median number of doses of upfront ipilimumab was 4 (range, 3–4). Two patients suffered CTCAE grade 3 adverse events (colitis, rash). All received external beam radiation: 3 to 3000 cGy, 1 to 6020 cGy. Post-radiation surgical resection was performed in 3 patients (75%); 1 (33%) of 3 patients achieved complete pathologic response. Complete local radiographic response was observed in all patients after completion of initial therapy and surgery. Two developed recurrence at 9 and 10 months post-diagnosis (mediastinum, lung); 2 remain disease-free at 20 and 38 months.

Conclusions: Mucosal melanoma of the lower genital tract is rare, and data-driven treatment strategies limited. Immunotherapy has demonstrated durable efficacy in the treatment of cutaneous melanomas. Our small case series shows a favorable response to combined ipilimumab and radiation therapy. Larger studies are needed to validate these promising results.
### ClinicalTrials.gov

#### Search Results

**26 Studies found for: immunotherapy | Cervix Cancer**

Also searched for Cervical cancer, Neoplasm, and Tumor. See Search Details

<table>
<thead>
<tr>
<th>Row</th>
<th>Saved Status</th>
<th>Study Title</th>
<th>Conditions</th>
<th>Interventions</th>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unknown</td>
<td>Immunotherapy of Recurrent Cervical Cancers Using Dendritic Cells (DCs)</td>
<td>Cervical Cancer</td>
<td>Biological: HPV/16 E7 peptide-pulsed autologous DCs</td>
<td>National Taiwan University Hospital, Taipei, Taiwan</td>
</tr>
<tr>
<td>2</td>
<td>Recruiting</td>
<td>Combination of Cryosurgery and NK Immunotherapy for Recurrent Cervical Cancer</td>
<td>Recurrent Cervical Cancer</td>
<td>Device: Cryosurgery</td>
<td>Fuda cancer institute of Fuda cancer hospital, Guangzhou, Guangdong, China</td>
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<tr>
<td>3</td>
<td>Completed</td>
<td>SGN-00101 Immunotherapy in Treating Patients With Grade III Cervical Intraepithelial Neoplasia</td>
<td>Cervical Cancer, Precancerous Condition</td>
<td>Biological: HsPE7</td>
<td>Albert Einstein Cancer Center at Albert Einstein College of Medicine, Bronx, New York, United States, New York Well Cornell Cancer Center at Cornell University, New York, New York, United States</td>
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<td>4</td>
<td>Completed</td>
<td>Advanced Cervical Cancer Trial in India</td>
<td>Cervical Cancer</td>
<td>Drug: Interferon, Retinoic Acid and radiation, Drug: Cisplatin and radiation</td>
<td>Chittaranjan National Cancer Institute, Kolkata, India</td>
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<td>5</td>
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<td>Panitumumab, Cisplatin, and Pelvic Radiation Therapy in Treating Patients With Stage III, Stage II, or Stage I Cervical Cancer</td>
<td>Cervical Cancer</td>
<td>Biological: panitumumab, Drug: cisplatin, Radiation: brachytherapy, Radiation: external beam radiation therapy</td>
<td>Innsbruck Universitaetsklinik, Innsbruck, Austria</td>
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</tbody>
</table>
Immunotheapy changing lives

Climbing the Sydney Harbour Bridge