

# CANCER IMMUNOTHERAPY (I-O)

**USING A PATIENT'S OWN IMMUNE SYSTEM**, immunotherapy or immuno-oncology (I-O) allows the body to seek out and destroy cancer cells. I-O is promising across an increasing number of cancers, although there is still much we don't know. These biologic therapies offer some patients the potential for shorter treatment time, longer survival and improved quality of life. While some I-O side effects can be severe and long-lasting, most side effects can be managed effectively if properly recognized and addressed.

## I-O IS TRANSFORMATIVE IN FIGHTING CANCER

- ⊕ Responses are often highly durable
- ⊕ Potential for long periods of remission, even cure, for some patients
- ⊕ Therapies that have memory, lasting long after the treatment period ends
- ⊕ Living therapy that can overcome cancer's ability to evade traditional therapies
- ⊕ New option for sicker patients unable to tolerate certain chemotherapy regimens

## I-O INCLUDES MULTIPLE TYPES OF THERAPIES

**Checkpoint Inhibitors** remove the brakes on the immune system to attack the cancer

**Cell Therapies** engineer immune cells to fight tumors eg: CAR-T

**Vaccines & Cytokines** activate the immune system to work as a targeted therapy

**Oncolytic Viruses** infect cancer cells to kill them and induce an immune response

## CHALLENGE

Not enough patients are benefiting and it is not clear who is most likely to benefit



Too many of the medical specialists seen by cancer patients have limited or no experience with novel I-O treatments



Despite I-O's potential, too few patients who may benefit access these therapies



## SOLUTION

**Increase research** to better understand how I-O works, prevent drug resistance, develop combinations and identify biomarkers to select patients

**Expand education and training** for all healthcare providers to improve response to I-O side effects and clinical management

**Address access to promising therapies** and assess I-O value with a holistic view of its benefits

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## Snapshot of Progress for Cancer Patients



*No recent cancer advance has been more transformative than immunotherapy.*  
- Dr. Julie M. Vose, Former President of the American Society of Clinical Oncology (ASCO) <sup>1</sup>



### CANCER TAKES A MAJOR TOLL ON AMERICANS.

In 2018 alone, more than 1.7 million Americans will be diagnosed (more than 4,700 each day) while an estimated 609,000 will die.<sup>2</sup>

Approximately half of patients with certain cancers can be successfully treated with traditional therapies,<sup>3</sup> but for the others,

**I-O offers new hope for a brighter future.**

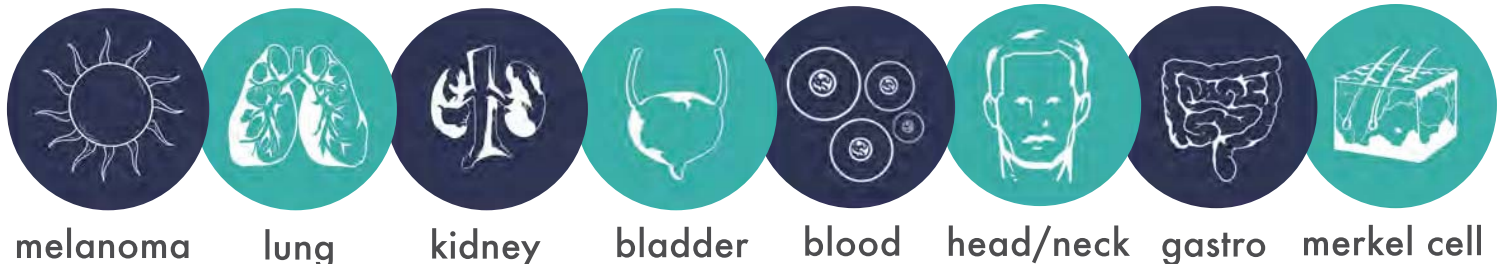


Economic benefit of successfully treating 1% more cancer patients<sup>4</sup>



**TODAY'S I-O THERAPIES WORK FOR APPROXIMATELY 1 in 5** patients who try them, providing better, more durable, treatment options.

**Patients diagnosed with certain cancers are benefiting** from the life-saving effects of I-O therapies, with more success to come.



I-O therapies have produced some response rates as high as 90% in certain cancers.<sup>5</sup>

With >240 I-O medicines in development,<sup>6</sup> there is more progress on the horizon.

March 2018

ASCO Annual Report, 2016 [bit.ly/2GiAXmx](http://bit.ly/2GiAXmx).<sup>1</sup> American Cancer Society, 2018 [bit.ly/2Ii5nGh](http://bit.ly/2Ii5nGh).<sup>2</sup> New England Journal of Medicine, 2017 [bit.ly/2HtH9rj](http://bit.ly/2HtH9rj).<sup>3</sup> NCBI, 2016 [bit.ly/2tFrwuF](http://bit.ly/2tFrwuF).<sup>4</sup> J. Wolchok, Cell, 2015 [bit.ly/2Hshu2c](http://bit.ly/2Hshu2c).<sup>5</sup> PhRMA 2017 Immuno-Oncology Medicines in Development Report [onphr.ma/2Hs3DsD](http://onphr.ma/2Hs3DsD).<sup>6</sup>



# CANCER IMMUNOTHERAPY (I-O)

Transforming the Cancer Treatment Paradigm



*We have seen dramatic responses from immunotherapy, often eradicating cancer completely for some cancer patients.*

- Dr. Francis Collins, Director of the National Institutes of Health<sup>1</sup>



## A BRIEF HISTORY OF CANCER TREATMENT BREAKTHROUGHS

Research advances have developed the staples of cancer therapy: surgery, radiation and chemotherapy.

Precision medicine brought targeted therapies into the cancer treatment arsenal and a new focus on unleashing patients' immune systems.

Today, there are 26 (and counting)<sup>2</sup> recently approved I-O regimens for multiple tumor types.

## PROGRESS TODAY

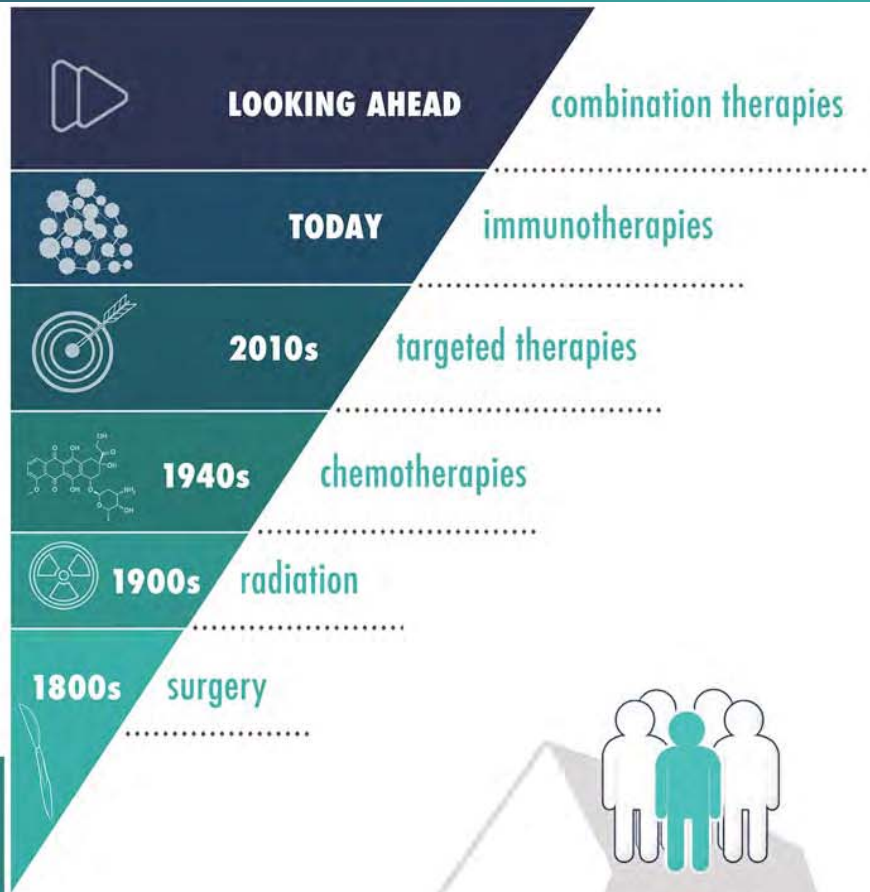
Approximately **1 in 5 patients** with a variety of previously hard-to-treat, late-stage cancer diagnoses are seeing meaningful response to I-O therapy and a return to their pre-cancer lives.

## PROMISE FOR TOMORROW

Innovative approaches to cancer research will allow more patients to benefit, with durable responses to I-O therapies.

**>40 novel immunotherapy targets under investigation<sup>3</sup>**

creating opportunities for even more progress



## JUST THE TIP OF THE ICEBERG

Immunotherapy is transforming the cancer treatment paradigm

**250,000 years of life could be saved<sup>4</sup>**

if certain advanced lung cancer patients received immune checkpoint inhibitor treatments

**15-90% response rates<sup>5</sup>**

for patients who respond to immune checkpoint inhibitors in more than 10 different cancer types



March 2018

NIH News Release, 2017 bit.ly/2ygnmIi.<sup>1</sup> Annals of Oncology, 2018 bit.ly/2HuhuPo.<sup>2</sup> Candriam, 2017 bit.ly/2Hr9y1c.<sup>3</sup> ASCO Clinical Cancer Advances 2018 Report bit.ly/2GtU1hk.<sup>4</sup> J. Wolchok, Cell, 2015 bit.ly/2Hshu2c.<sup>5</sup>

FRIENDS  
of CANCER  
RESEARCH

sitc  
Society for Immunotherapy of Cancer



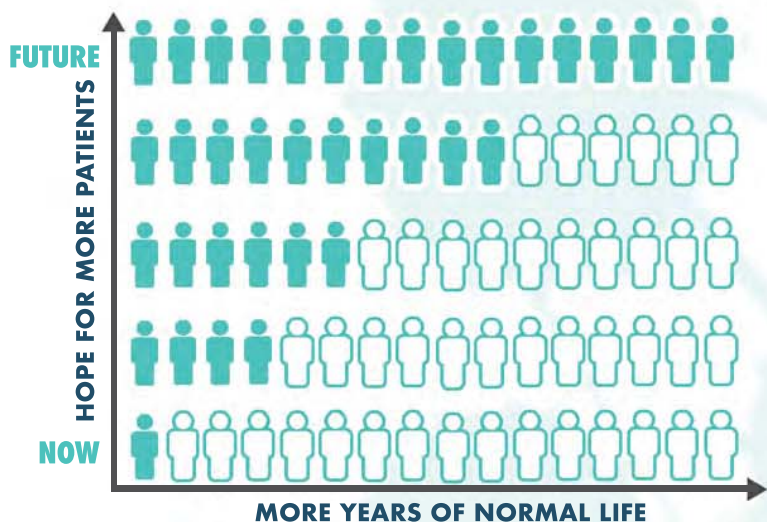
# CANCER IMMUNOTHERAPY (I-O)

Helping More Patients Benefit and Move Beyond Cancer

“ For a long time, the goal of cancer research has been to turn cancer into a chronic disease. With I-O, we have the potential to go beyond this goal and turn it into a curable disease. ”  
- Dr. Michael Atkins, Deputy Director, Georgetown Lombardi Comprehensive Cancer Center<sup>1</sup>

For too long, cancer has taken patients and their families away from normal life, with only about half of patients seeing success from chemotherapy, radiation and surgery.

**With support for research and access, more patients will benefit from I-O, moving beyond cancer and living longer.**



## CANCER IMMUNOTHERAPY OFFERS NEW HOPE

### PATIENTS

- + Look and feel like yourself
- + Maintain your fertility
- + Do what you love; travel and try new things, even during treatment
- + Remain productive at work, home and within your community
- + Hope for a cancer-free future

### FRIENDS & FAMILY

- + Celebrate long, full lives together
- + Caregivers can get back to their normal lives too
- + Patients can get back to taking care of their families

### SOCIETY

- + More productive years for cancer survivors
- + Less need for long-term, expensive healthcare related to ongoing cancer treatment
- + Less strain on healthcare infrastructure

## In the Words of Patients

“Immunotherapy enables you to have a part in your recovery... I have made significant changes to focus on my body being healthy, since it’s my own immune system that is battling and beating cancer.”<sup>2</sup>

**Stage IV Melanoma Survivor**

“The chemo sometimes took 5-6 hours and left her deathly ill for days; the immune drug was done in about an hour... It’s so easy one you... I know now that my body is one-upping the cancer.”<sup>2</sup>

**Stage IV Lung Cancer Survivor & Husband**

“The T-cell experience was a walk through the park. It was a piece of cake compared to the chemo and the transplant.”<sup>2</sup>

**Acute Lymphocytic Leukemia Survivor**