



San Francisco · Chicago · New York · Houston · Tampa

Houston January 27, 2018



#### Brian Brewer Cancer Research Institute

## WELCOME



Our Host



A special thank you for hosting the Immunotherapy Patient Summit

Baylor College of Medicine

## DAN L DUNCAN COMPREHENSIVE CANCER CENTER





This event is made possible with generous support from:





#### Thank you to those who helped promote the summit

Addario Lung Cancer Foundation BrainUp Coalition for Clinical Trial Awareness Colon Cancer Alliance Dan L Duncan Comprehensive Cancer Center Fight Colorectal Cancer Focused Ultrasound Foundation FORCE **GI** Cancers Alliance

Harris Health System Imerman Angels Immunotherapy Foundation Let Life Happen Melanoma Research Foundation MD Anderson Cancer Center National Ovarian Cancer Coalition Patient Empowerment Network Survivors Offering Support Sugarland US TOO

Our Guest Faculty

### Scientific Experts

Charles Drake, M.D., Ph.D. Columbia University Medical Center Carlos Ramos, M.D., Ph.D. Baylor College of Medicine Andrew Sikora, M.D., Ph.D. Baylor College of Medicine Sumit Subudhi, M.D., Ph.D. MD Anderson Cancer Center Jun Zhang, M.D. Baylor College of Medicine





#### Patient Experts

Dale Biggs Squamous Cell Carcinoma Katherine (K.C.) Dill Lung Cancer Janie Ferling Melanoma Adam Requena Mesothelioma

#### Schedule of Events



9:00am	Registration and networking	1:00pm	Demystifying clinical trials Learn about clinical trials and panel dis	scussion			
10:00am	Program commences		Moderator Brian Brewer				
	Welcome Brian Brewer		Panelists Dale Biggs Katherine Dill Adam Requena				
10:15am	Hear from the experts Learn the basics of immunotherapy Charles Drake, M.D., Ph.D.	2:00pm	Beverage break				
	Latest research update panel	2.13pm	Your choice of moderated discussion with our experts or a				
	Moderator		general networking session				
	Charles Drake, M.D., Ph.D. Panelists Carlos Ramos, M.D., Ph.D. Andrew Sikora, M.D., Ph.D. Sumit Subudhi, M.D., Ph.D.		Urologic Cancer Sumit Subudhi, M.D., Ph.D.	Head and Neck Cancer Andrew Sikora, M.D., Ph.D.			
			Blood Cancer and HPV-Associated Cancers Carlos Ramos, M.D., Ph.D.	General Immuntherapy & Networking Charles Drake, M.D., Ph.D.			
11:30am	Patient perspective Hear from a melanoma survivor	3:15pm	Program closes <b>Clinical trial navigator appointments</b> Appointments will be available all day. If you didn't pre-register, check with the registration desk.				
12:00pm	Janie Ferling Lunch and networking	9:00am – 4:00pm					

### Charles Drake, M.D., Ph.D. Director GU Medical Oncology Co-Director Immunotherapy Program Associate Director for Clinical Research Professor of Oncology Herbert Irving Cancer Center at Columbia University



## IMMUNOTHERAPY BASICS







- T Cells
- Activating T Cells In Tumors
- Activating T Cells Outside of Tumors
- Combination Immunotherapy



#### CD8 T Cells Are Born to Kill







#### Killer T Cells in Tumors







Brown Staining = CD8 T Cells

#### Why Are Those Killer T Cells Not Killing?





CD8 T Cells are Being Held in Check (Exhausted) WHEN PD-L1 is Expressed











#### Rapid Tumor Shrinkage (in some patients) Evidence of Killing





Weeks since treatment initiation



**Drake CG** et al Journal of Clinical Oncology, 2013 ASCO Annual Meeting Abstracts. Vol 31, No 15\_suppl (May 20 Supplement), 2013: 4514 ASCO 2013

#### Blocking PD-1 (or PD-L1) Allows T Cells to Proliferate





#### Temporary Tumor Growth Before Shrinking Evidence of T Cell Proliferation in Patients





Weeks since treatment initiation



**Drake CG** et al Journal of Clinical Oncology, 2013 ASCO Annual Meeting Abstracts. Vol 31, No 15\_suppl (May 20 Supplement), 2013: 4514 ASCO 2013

#### Long Term Responses Off Treatment Evidence for T Cell Memory?





Weeks since treatment initiation



**Drake CG** et al Journal of Clinical Oncology, 2013 ASCO Annual Meeting Abstracts. Vol 31, No 15\_suppl (May 20 Supplement), 2013: 4514 ASCO 2013

Not Just a Line on A Graph ....



# 2002: Surgery to remove kidney cancer

2008: Multiple metastatic cancer lesions in lungs, bone, soft tissue

#### 2004: Relapse with multiple lung tumors Treated on sequential clinical trials





#### Other Approaches







**Brown Staining = CD8 T Cells** 

#### MORE T Cells = Better Adoptive Transfer





BETTER T Cells = Better Chimeric Antigen Receptor T Cells (CAR-T)







Courtesy of. Carl June, U Penn

The New York Times

HEALTH



#### In Girl's Last Hope, Altered Immune Cells Beat Leukemia

By DENISE GRADY DEC. 9, 2012

00



### This Means CAR-T Cells

Emma Whitehead, with her mother, Kari. Last spring, Emma was near death from acute lymphoblastic leukemia but is now in remission after an experimental treatment at the Children's Hospital of Philadelphia. Jeff Swensen for The New York Times



#### Not All Tumors Have T Cells: Combination Approaches





Kidney Tumor with T Cells



Kidney Tumor



Brown Staining = CD8

#### The Tumor Microenvironment is a VERY Unfriendly Place







## Combining Two Immunotherapies (Anti-PD-1 and Anti-CTLA-4) (Can Sometimes Increase Toxicity



Table 2. Highest Grade of Selected Treatr	nent-Related	Adverse Events	s That Occurre	ed in at Least C	ne of the Patie	ents Who Receiv	ed the Concu	rrent Regimen.*			
Event	Cohort 1 (N=14)		Cohort 2 (N=17)	Cohort 2a (N=16)	Cohort 3 (N=6)		All Patients in Concurrent-Regimen Group (N=53)				
	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	
Preumonitis	1 (7)	0	2 (12)	1 (6)	number oj po	nients (percent)	0	0	3 (6)	1 (2)	
Endocrinopathy	1 (7)	0	3 (18)	1 (0)	1 (6)	0	2 (33)	1 (17)	7 (13)	1 (2)	
Hypothyroidism	0	0	2 (12)	0	0	0	0	0	2 (4)	0	
Hypothytotalsin	0	0	1 (6)	0	0	0	1 (17)	1 (17)	2 (4)	1 (2)	
Thyroiditis	0	0	1 (6)	0	1 (6)	0	1 (17)	0	3 (6)	0	
Adrenal insufficiency	0	0	2 (12)	0	0	0	0	0	2 (4)	0	Honatitic
Hyperthyroidism	0	0	1 (6)	0	0	0	1 (17)†		2 (4)†	0	
Thyroid-function results abnormal	1 (7)	0	0	0	0	0	0	0	1 (2)	0	
Hepatic disorder	4 (29)	3 (21)	5 (29)	3 (18)	2 (12)	1 (6)	1 (17)	1 (17)	12 (23)	8 (15)	
Aspartate aminotransferase increased	4 (29)	3 (21)	4 (24)	2 (12)	2 (12)	1 (6)	1 (17)	1 (17)	11 (21)	7 (13)	
Alanine aminotransferase increased	3 (21)	2 (14)	5 (29)	3 (18)	2 (12)	0	1 (17)	1 (17)	11 (21)	6 (11)	
Gastrointestinal disorder	5 (36)	1 (7)	6 (35)	2 (12)	6 (38)	2 (13)	3 (50)	0	20 (38)	5 (9)	
Diarrhea	5 (36)	0	5 (29)	1 (6)	5 (31)	2 (13)	3 (50)	0	18 (34)	3 (6)	Monhritic
Colitis	1 (7)	1 (7)	2 (12)	1 (6)	1 (6)	0	1 (17)	0	5 (9)	2 (4)	
Renal disorder	1 (7)	1 (7)	1 (6)	1 (6)	1 (6)	1 (6)	0	0	3 (6)	3 (6)	
Blood creatinine increased	1 (7)	1 (7)	1 (6)	1 (6)	1 (6)	1 (6)	0	0	3 (6)	3 (6)	
Acute renal failure	0	0	1 (6)	1 (6)	1 (6)	1 (6)	0	0	2 (4)	2 (4)	Dormatitic
Renal failure	0	0	1 (6)	1 (6)	0	0	0	0	1 (2)	1 (2)	
Tubulointerstitial nephritis	1 (7)	0	0	0	0	0	0	0	1 (2)	0	
Skin disorder	10 (71)	1 (7)	14 (82)	0	10 (62)	1 (6)	3 (50)	0	37 (70)	2 (4)	<u>k</u>
Rash	8 (57)	1 (7)	11 (65)	0	7 (44)	1 (6)	3 (50)	0	29 (55)	2 (4)	
Pruritus	6 (43)	0	11 (65)	0	7 (44)	0	1 (17)	0	25 (47)	0	
Urticaria	0	0	0	0	1 (6)	0	0	0	1 (2)	0	
Blister	0	0	1 (6)	0	0	0	0	0	1 (2)	0	
Infusion-related reaction	0	0	1 (6)	0	0	0	0	0	1 (2)	0	





#### Combination Immunotherapy Can Be VERY Active









IDO Immune Suppression and Tumor Growth





#### Other Ways Tumors Resist the Immune System

- Breaks down tryptophan
- Tryptophan is essential for T cell function

www.newlinkgenetics.com

#### Combining T Cell Re-Activation (anti-PD-1) With IDO Inhibition







Zakharia, Y – AACR Annual Meeting 2017

#### Our Challenge

CANCER RESEARCH INSTITUTE

PATIENT SUMMIT

## Targets on T Cells



Targets in the Tumor Microenvironment

• IDO

- Adenosine / A2A Receptor
- TGF-Beta
- Interleukin 8
- CSF-1
- NLRP3





https://www.cancerresearch.org/patients/what-is-immunotherapy

https://www.cancer.org/treatment/treatments-and-side-effects/ treatment-types/immunotherapy.html

https://www.cancer.gov/research/areas/treatment/immunotherapyusing-immune-system

https://www.mdanderson.org/treatment-options/immunotherapy.html

https://www.pennmedicine.org/cancer/navigating-cancer-care/ treatment-types/immunotherapy



## Panel Discussion

## LATEST RESEARCH UPDATE





Scientific Panel



## Moderator

Charles Drake, M.D., Ph.D.

## Panel

Carlos Ramos, M.D., Ph.D. Blood Cancer & HPV-Associated Cancers Andrew Sikora, M.D., Ph.D. Head and Neck Cancer Sumit Subudhi, M.D., Ph.D. Urologic Cancer



#### Janie Ferling Melanoma Survivor

## PATIENT PERSPECTIVE





## LUNCH AND NETWORKING



#### Brian Brewer Cancer Research Institute

## DEMYSTIFYING CLINICAL TRIALS



#### What Are Clinical Trials?





Research studies that involve people

• Designed to answer specific questions about new and existing treatments

• Aim to improve treatments and the quality of life for people with disease

#### Getting from Discovery to Approval

IMMUNOTHERAPY PATIENT SUMMIT





Source: AppliedClinicalTrials.com

#### What Are Clinical Trial Phases?



#### Is the treatment safe?

#### Purpose:

- First study in humans
- Find best dose, delivery method, and schedule
- Monitor for side effects
- Determine safety

Number of people: 20-100

Does it work?

Phase

2

Purpose:

- Look for effect on specific type(s) of cancer
- Continue monitoring for side effects and safety

#### Number of people: 100-500

Phase

#### Does it work better?

3

#### Purpose:

- Compare new treatment (or new use of a treatment) with current standard treatment
- Determine risk vs. benefit

Number of people: 1,000-5k+



Potential Advantages	Potential Disadvantages
Access to best possible care	Unknown side effects or risks
Receiving new drugs before they're widely available	Unknown benefits—drugs may not work as intended
Close monitoring by medical team	Not all patients may benefit
Chance to play active role in healthcare and research	Frequent tests and clinic visits
Help future generations	Possible need to travel to trial sites



#### Questions to Ask Before Volunteering



- Why is this trial being done?
- Why is it believed that the treatment being studied may be better than the standard treatment?
- What are my other options (standard treatments, other trials)?
- How did patients do in any previous studies of this treatment?
- How will the doctor know if treatment is working?
- How long will the trial last?



#### Questions to Ask Before Volunteering



- Can I continue to receive this treatment after the trial ends?
- What kinds of procedures or tests are involved?
- What impact with the trial have on my daily life?
- Will I have to travel for treatment? Will I be compensated?
- How often will I need to travel to receive treatment?
- Will I be hospitalized as part of the trial?
- What costs (if any) will be my responsibility to pay?



#### Getting into a Clinical Trial Isn't Always a Given



Trials are designed to ask specific questions, and must adhere strictly to entry criteria to ensure data is accurate and meaningful.

This also helps ensure patients who could be made worse by treatment are not exposed to the risk.

Common criteria include:

- cancer type or stage
- treatment history
- genetic factors
- age
- medical history
- current health status





I might only get placebo ("sugar pill") instead of treatment.



# Fact: Placebos are rarely used and never given in the absence of some form of treatment.





Trials are only for people who have run out of treatment options (a "last resort").



# Fact: Clinical trials are designed for people with cancer of all types and stages.





I need to travel to a large hospital or cancer center to participate in a clinical trial.



Fact: Trials take place at local hospitals, cancer centers, and doctors' offices in all parts of the country, in both urban and rural areas.





My health insurance doesn't cover the cost of care in a clinical trial.



Fact: Doctor visits, hospital stays, and certain testing procedures may be covered by insurance. Research costs are typically covered by the trial sponsor.





# Signing a consent form "locks" me into staying in a trial.



Fact: You are free to change your mind for any reason about participating in a trial anytime before or during a trial.





I will be made to feel like a "guinea pig" experiment.



Fact: The overwhelming majority of trial participants say they were treated with dignity and respect, and report having had a positive experience in a trial.





Clinical trials aren't safe.



Fact: Safeguards including an Institutional Review Board, Data and Safety Monitoring Board, and an ongoing informed consent process ensure patients' rights and safety are protected.



#### A Word About Informed Consent



#### Informed consent = having all the facts before and during a trial

- Study purpose
- Length of time of the study
- Predictable risks
- Possible benefits
- Expectations
- Patient's rights

- Treatment alternatives
- Patient health monitoring
- Safeguards in place
- How to withdraw from study

Be bold in asking for details. It's YOUR treatment plan.



#### How Can I Find a Clinical Trial?

- Ask your doctor
- Ask another doctor if necessary...
- Contact a patient advocacy organization
  - Seek assistance from a clinical trial navigator, if offered
  - CRI Clinical Trial Finder: 1 (855) 216-0127
- Search online
  - <u>https://www.cancerresearch.org/patients/clinical-trials</u>
  - <u>https://clinicaltrials.gov/</u>







#### **Panel Discussion**

## IMMUNOTHERAPY CLINICAL TRIALS



**Patient Panel** 



## Moderator

**Brian Brewer** 

### Panel

Dale Biggs Squamous Cell Carcinoma Katherine (K.C.) Dill Lung Cancer Adam Requena

Mesothelioma



## **BREAKOUT SESSIONS**





#### **Breakout Rooms**



#### Blood Cancer & HPV-Associated Cancers N317 Carlos Ramos, M.D., Ph.D.

#### Head and Neck Cancer

Andrew Sikora, M.D., Ph.D. Jun Zhang, M.D.

Urologic Cancer Sumit Subudhi, M.D., Ph.D.

General Immunotherapy Charles Drake, M.D., Ph.D.



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#### **McMillian**

Kleberg (Here)





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