

# JEFFREY HOLT, PHD

## FUNCTION AND DYSFUNCTION OF TMC CHANNELS IN INNER EAR HAIR CELLS



### About the lecture

Sensory hair cells of the inner ear convert sound information into electrical signals that are transmitted to the brain. This remarkable feat depends on a protein known as TMC1. Dr. Holt discovered that the TMC1 protein forms an ion channel that opens and closes in response to sound vibrations in the inner ear. When TMC1 opens, ions such as sodium, potassium and calcium flow into the cell to initiate the electrical signal. Unfortunately, genetic mutations in TMC1 block this process and cause deafness. Dr. Holt is developing novel gene therapy strategies designed to restore hearing in patients with genetic deafness.

### About Dr. Jeffrey Holt

Dr. Holt earned his Ph.D. degree in human physiology from the University of Rochester in 1995. Post-doctoral training was as a Howard Hughes Medical Institute Fellow in the lab of David Corey at Harvard Medical School. Dr. Holt held his first faculty appointment at the University of Virginia and in 2011 joined the faculty at Boston Children's Hospital and Harvard Medical School where he is currently appointed as Professor of Otolaryngology and Neurology.

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## March 25, 2020

Rm 002, Close Hipp Building

5:15 PM-6:45 PM

Cost: **FREE**

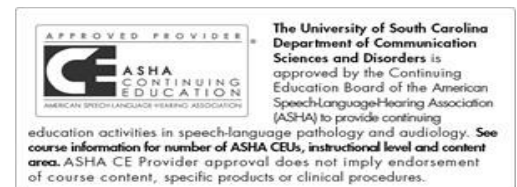
**Eligible Participants can  
receive .15 ASHA CEU's**

### Participants will be able to:

1. Describe the biology of sensory transduction in auditory and vestibular hair cells.
2. Identify the role of TMC1 and TMC2 in hair cells and why mutations in those genes cause deafness and balance disorders.
3. Describe the current status of gene therapy as an emerging strategy for treating genetic inner ear disorders.

**Disclosure:** Financial Relationships: Dr. Holt is receiving an honorarium for his presentation.

Non-Financial Relationships: No relevant non-financial relationship exists.



This course is offered for .15 CEU's  
(Various levels, Basic Communication Processes)

## Directions to the Jeffrey Holt Lecture, Close-Hipp 002 Communication Sciences and Disorders

\*\*\*When using GPS, DO NOT search by our name. You may be directed to our old location. Be sure to use our parking garage address: **950 Henderson Street, Columbia, SC 29208**\*\*\*



**From the Upstate:** Take I-26 East toward Columbia. Take I-126 into Columbia. This changes into Elmwood Avenue. Turn right on Bull Street. Turn left on Pendleton Street. Refer to Parking Instructions for further direction.  
**From Charleston:** Take I-26 West toward Columbia. Take I-126 into Columbia. This changes into Elmwood Avenue. Turn right on Bull Street. Turn left on Pendleton Street. Refer to Parking Instructions for further direction.  
**From Augusta:** Take I-20 East toward Columbia. Take I-26 East to I-126 into Columbia. This changes into Elmwood Avenue. Turn right on Bull Street. Turn left on Pendleton Street. Refer to Parking Instructions for further direction.  
**From Rock Hill/Charlotte:** Take I-77 South to Columbia. Take Highway 277 South to Bull Street. Turn left on Pendleton Street. Refer to Parking Instructions for further direction.

### Parking Instructions:

Continue on Pendleton Street toward Barnwell Street. Turn right on Henderson Street at the stop sign to head in the direction of the parking garage. Pass the street parking on either side until you come to a downward ramp on your left to enter the garage with these signs displayed (enter the garage with caution as others may be leaving the garage):



Enter the garage (**clearance: 8'10"**) on the ramp and keep straight until you see the last row of parking spaces. We are free to use these spaces, any metered spaces and the spaces in the parking lot around the Close Hippi Building after 5:00 with no charge.

Questions? You can reach us at (803) 777-3643 or [theresaw@mailbox.sc.edu](mailto:theresaw@mailbox.sc.edu).