

# TRIAD CHEMICAL TIMES



Central North Carolina Section American Chemical Society



## Upcoming Events

Virtual Local Section Meeting: Tuesday, January 26, 2021 7:00 pm  
See Page 3 for meeting link

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## CNC-ACS Officers

Mr. Kent Kabler	Chair	<a href="mailto:kent.kabler@syngenta.com">kent.kabler@syngenta.com</a>
OPEN	Chair Elect	
Dr. Gail Webster	Treasurer	<a href="mailto:gwebster@guilford.edu">gwebster@guilford.edu</a>
CNC-ACS Website:		<a href="https://cnc-acs.org/">https://cnc-acs.org/</a>
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## 2021 Letter from the Chair

Happy 2021! With renewed optimism we welcome a new year!

I would like to thank our 2020 Chair, Rodney Bennett, and all the members and volunteers who participated in section activities, during such a challenging year amid a global pandemic! Although in-person activities were very limited, we still had many programs that were very successful. These included a presentation by Dr. Rigoberto Hernandez of Johns Hopkins University on nanoparticle technology, a collaboration with four local universities that participated in the National ACS webinar on the Future of Food, the continued commitment of the Buffalo Creek cleanup led by TJ Mayer, and a very successful virtual National Chemistry Week led by Steve Kennedy. The Senior Chemists Committee, led by Robert Yokley, was a finalist for an ACS ChemLuminary Award for Best Continuing Senior Chemists Activity within a Local Section! This was an amazing achievement during such a difficult year!

As we plan for 2021 section activities, I am hopeful that we will eventually be able to return to limited in-person meetings. However, for the near term, we will continue to schedule these as virtual events. Planning is underway for our monthly section programming that will feature a variety of interesting scientific topics, as well as the annual poster-vendor night (PVN) meeting in the spring. Our first local section meeting is scheduled for **January 26<sup>th</sup>**, and the speaker will be Dr. Peter Cameron from Caribou Biosciences, Inc. He will be giving a presentation on CRISPR technology. Please see the monthly newsletter for details about these and other events.

In coordination with the National ACS 2021 Strategic Plan, additional local section goals for this year include:

- Empowering members through continued support of STEM grants, Project SEED activities, and ACS on campus.
- Get Involved, Stay Involved! - enhancing the volunteer network within the section. Step up to the plate and volunteer to serve on a committee! Many opportunities are available within our section.
- Communicate Chemistry's Value – Science Café, National Chemistry Week, and Mole Day Activities are planned.
- Community Outreach and Networking – through the continued development of social media and networking tools we are striving to connect with our local members and broader community.

I welcome your feedback and suggestions for programs and activities you would like to see or participate in! Please send them to me at [kablerk@northstate.net](mailto:kablerk@northstate.net). Also, please visit the local section website at <http://www.cnc-accs.org> and Facebook at **Central North Carolina American Chemical Society** for updated information.

Regards,

Kent Kabler

## January Local Section Meeting Details

### Talk Title:

Precision Editing with Hybrid RNA-DNA Guided Cas9

### Biography:

Peter Cameron, Ph.D. is the Associate Director of Technology Development at Caribou Biosciences, Inc. where he leads efforts to develop novel technologies for precision genome editing. He earned his PhD in Molecular and Cell Biology from the University of California, Berkeley and did postdoctoral work at The Scripps Research Institute in San Diego, where he developed novel genetic tools to manipulate neural circuits in the mouse brain. Following that, he was hired as a Scientist at Caribou, where he initially worked on a comprehensive, genome-wide method to measure CRISPR-Cas9 specificity. More recently, Peter has focused on optimizing CRISPR-Cas systems for use as genome editing tools in human primary cells. Caribou is a leading clinical-stage biotechnology company using CRISPR genome editing to discover and develop immune cell-based therapeutics for cancer. The company's pipeline includes genome-edited off-the-shelf CAR-T cell and natural kill cell therapies for a range of tumor types.

### Abstract:

The CRISPR-Cas9 system has emerged as an efficient and versatile platform for genome engineering. The off-target activity of Cas9, however, still remains a concern, especially for certain clinical applications. Although high-fidelity Cas9 variants have been engineered, these proteins exhibit varying editing efficiencies and have residual off-target effects in vivo, limiting their applicability. Here, I will discuss Caribou's CRISPR hybrid RNA-DNA (chRDNA) guide platform, which provides a highly effective approach to increase Cas9 specificity without perturbing on-target efficiency. Across multiple sites in therapeutically relevant primary T cells, we have found that 2'-deoxynucleotide positioning affects guide activity in a target-dependent manner, and that this can be leveraged to engineer chRDNA guides with almost no detectable off-target activities. Unlike "all RNA-guided" high-fidelity Cas9 variants, chRDNAs can be fine-tuned via iterative engineering to discriminate on- and off-target sequences that differ by only a single nucleotide. Finally, I will discuss how we are deploying our chRDNA platform to develop an allogeneic CAR-T cell therapy to treat non-Hodgkin lymphoma. Together, these studies demonstrate that chRDNAs provide an efficient and highly customizable approach for the generation of genome-edited cells for immuno-oncology applications.

## January 26, 2021 7-8:30 pm

**Topic: CNC-ACS January Section Meeting**

Time: Jan 26, 2021 07:00 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://american-chemical-society.zoom.com/j/82458912905?pwd=NzhUbHdEa2U3dkR3TXI4QTVSQnhRdz09>

Meeting ID: 824 5891 2905

Password: 723504

## CNC-ACS Executive Committee

Chair	Kent Kabler	<a href="mailto:Kent.kabler@syngenta.com">Kent.kabler@syngenta.com</a>	336-708-1626
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Alternate Councilor ('21)	Ed Robinson	<a href="mailto:Edwardrobinson.robinsoner@gmail.com">Edwardrobinson.robinsoner@gmail.com</a>	336-337-3361
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Director ('20)	TJ Mayer	<a href="mailto:tjmayer@carringers.com">tjmayer@carringers.com</a>	336-708-0643

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Earth Day	TJ Mayer	<a href="mailto:tjmayer@carringers.com">tjmayer@carringers.com</a>	336-708-0643
Government Relations	Ed Robinson	<a href="mailto:Edwardrobinson.robinsoner@gmail.com">Edwardrobinson.robinsoner@gmail.com</a>	337-3361
Hospitality	<b>OPEN</b>		
Long Range Planning	<b>OPEN</b>		
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