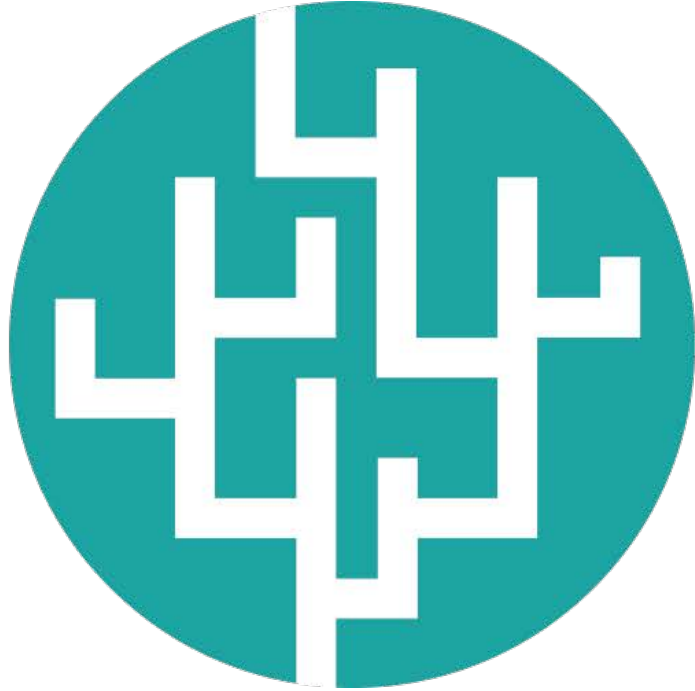


# Agency Directionality & Function

Preliminary Remarks &  
Orientation

Opening Summit Meeting



# Agency Directionality & Function

Preliminary Remarks  
& Orientation

- What are we doing, and why?
- Who is here?
- How was this possible?
- How will we proceed (and other details)?

## Biologists often attribute purpose to living systems... Should they?

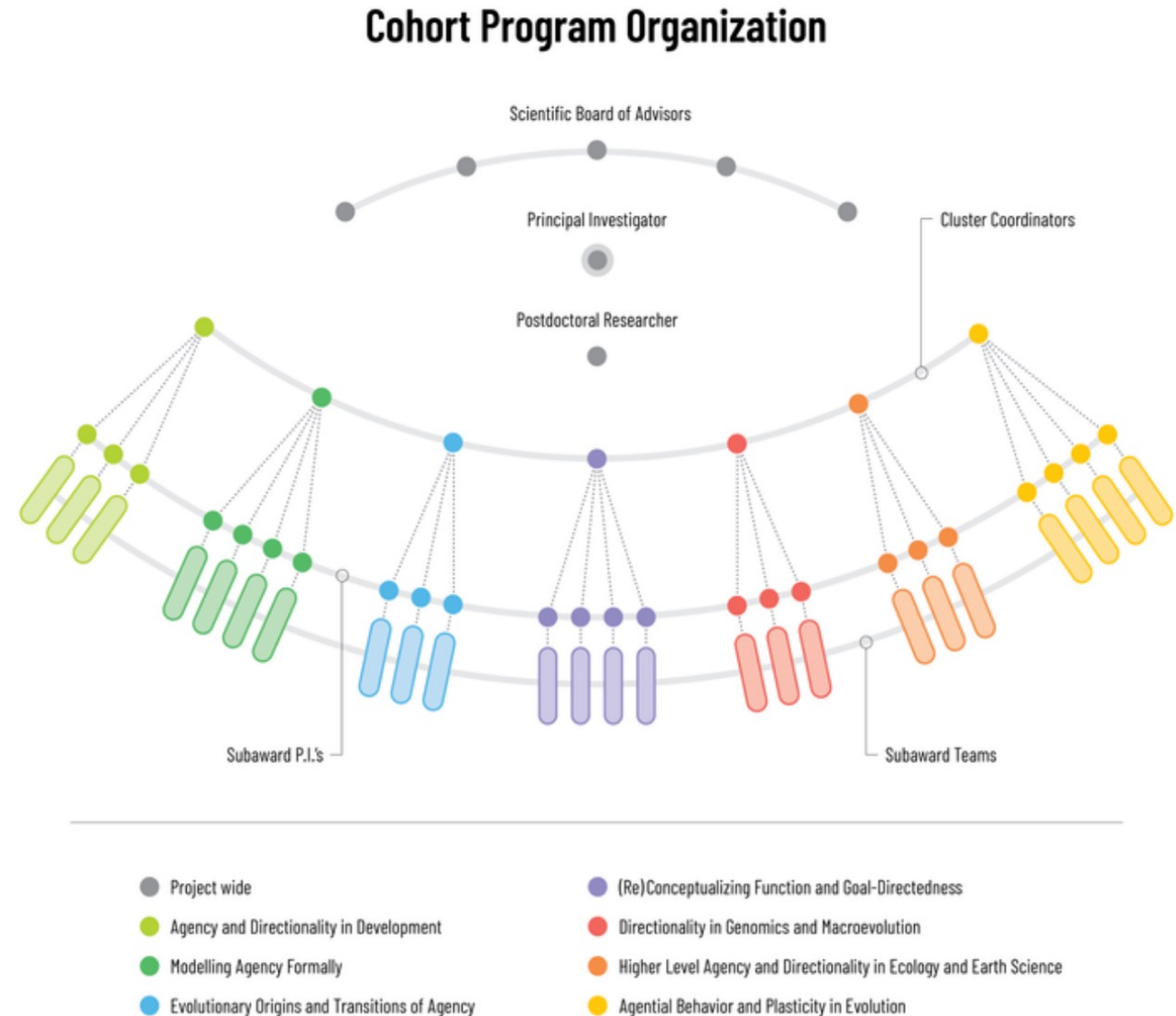


*Although biologists often use descriptive language that imputes purposiveness to living systems, many have argued that these conceptions are at best heuristic, and at worst egregious errors. However, there is a growing recognition that biological phenomena which suggest agency, directionality, or goal-directedness demand new conceptual frameworks that can translate into rigorous theoretical models and discriminating empirical tests.*

# What are we doing?

- The cohort program “Agency, Directionality, and Function: Foundations for a Science of Purpose” is designed (pun intended) to address this demand through a novel, interdisciplinary, large-scale program that combines philosophers, theoreticians, and experimentalists to...
  - Articulate more precise concepts related to function and purpose
  - Develop innovative formal models of agency
  - Operationalize notions of goal-directedness for accurate measurement
  - Trial and implement methods and platforms to detect and manipulate directionality in living systems

- Seven clusters composed of multiple distinct research groups under the leadership of a coordinator
- Collaborative activities: including within-team investigative tasks (e.g., conceptual analysis, formal modeling, and experimental inquiry), within-cluster workshops and quarterly briefings, and across-project conferences with strategic writing enterprises and outside commentators
- Each cluster is organized around key concepts, modeling practices, and distinctive phenomena at diverse temporal and spatial scales—behavior, development, ecology, genomics, and macroevolution







# Why?

- “Foundations for a Science of Purpose”
- The collaborative activities are intended to result in conceptual, theoretical, and empirical outputs comprising foundations for a multidisciplinary science of purpose
- These foundations are intended to foster new lines of scientific research based on an increased array of conceptual possibilities, distinctive formal modeling strategies, and next-generation experimental platforms for the discovery, observation, and manipulation of “purposive” phenomena

# What are we doing (here)?

- The opening summit is intended to introduce the full range of people and projects involved in the cohort program, which has more than 100 individuals on different teams throughout the 24 subawards and core team
- It is not a given that all the subaward project members will be familiar with one another's aims and goals, especially outside of the thematic cluster where their own project has the most resonance
- Therefore, the opening summit aims to facilitate introductions of both project content and personnel, as well as cluster coordinators and scientific advisory board members, and includes outside commentators joining the proceedings and offering feedback on what they observe
- More generally, we are attempting to build intellectual community that is productive for ongoing research—not only for the next three years but for the next decade and beyond



# Three-pronged strategy

- Morning sessions are meant for introducing everyone to the different projects (i.e., orientation); questions and short discussions should focus on clarification about what the projects aim to do
- Afternoon sessions dig more deeply into why projects are doing particular research activities and whether they can accomplish their stated goals. Additionally, wider issues beyond individual projects can be engaged, especially in relation to stimulating new forms of scientific inquiry into agency, function, and directionality
- Organized dinners and informal meal and break times (for those attending in-person) are intended to help foster connections and develop relationships in more depth

# Who is here (in-person and virtually)?

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- Project Participants
  - Subaward PIs and team members
  - Cluster Coordinators
  - Scientific Board of Advisors
  - Minnesota Core Team
  - Communications Team
- Guests and Observers
  - Outside Commentators
  - Sociological Study Team
  - Invited Guest Observers
  - Representatives from JTF



# How was this possible?

- Minnesota Core Team
  - Anne Lageson (Fiscal Administration)
  - Keely Khoury (Website/Communications)
  - Janet McKernan (General Administration)
  - Peter Hundt (Research Compliance Manager)
  - Max Dresow (Cohort Program Postdoc)
- Local Support
  - Pauline Saldana and the DoubleTree staff
  - Cosmo Audio & Visual
- Financial Support
  - John Templeton Foundation

Thank  
you!

# How will we proceed (and other details)?

## Schedule

Opening Remarks: 8:45-9:00 CST (Salon de Gala)

 Lightning Talks - Project Overviews: 9:00-10:20 CST (Salon de Gala)

- Newman: Cellular agency in multicellular development and cancer
- Lowe: The genetic basis of macroevolutionary trends
- Oderberg: Mistakes in living systems: a new conceptual framework
- Livnat: Mutation rates, variational specificity, and long-term directionality in the genome

Coffee Break: 10:20-11:00 CST (Outside)

Lightning Talks - Project Overviews: 11:00-12:20 CST (Salon de Gala)

- Soto: Intrinsic purposiveness and the shaping of development
- Goldstein: Physical aspects of early multicellular development
- Bourrat: Transitions in individuality: from ecology to teleonomy
- Moreno: Integration and individuation in the origin of agency

Lunch: 12:30-14:00 CST

- PI lunch meeting with Scientific Board of Advisors (Alameda)

Breakout Groups: 14:00-15:15 CST (See overleaf)

Coffee Break: 15:15-15:45 CST (Outside)

Breakout Groups: 15:45-17:00 CST (See overleaf)

Dinner: 19:00-21:00 CST (See separate sheet)

Opening Summit Meeting  
3 MARCH 2022 • SAN ANTONIO  
**Thursday**

## Thursday Breakout Groups

 Breakout Groups: 14:00-15:15 CST

**Group 1: Autonomy and Mistakes: Models and Measurement (Arneson)**

Moderator: Alan Love

Attendees: Adams, Ball, Duckworth, El-Hani, Garson, Leite, Lennox, McShea, Moreno, Oderberg, Patten, Pocheville, Reydon, Sarkar, Shaw, Soto, Walsh

**Group 2: Conceptualizing Transitions in Agency (Aztec A)**

Moderator: Max Dresow

Attendees: Allen, Barker, Bourrat, Bich, Desmond, DiFrisco, Fontana, Livnat, Mangan, Meincke, Newman, O'Connor, Queller, Rosslénbroich, Snell-Rood, Wagner, Watson

**Group 3: Operationalizing Agency (Aztec B)**

Moderator: Anya Plutynski

Attendees: Ågren, Daines, Davies, Donoghue, Goldstein, Linquist, Lowe, Masel, Moss, Nuño de la Rosa, Okasha, Skillings, Sterner, Strassmann, Uller, Wimsatt

Breakout Groups: 15:45-17:00 CST

**Group 1: The Relevance of Physical Theory to Models of Agency and Directionality (Arneson)**

Moderator: Alan Love

Attendees: Ågren, Ball, Barker, Bich, Davies, Donoghue, El-Hani, Fontana, Goldstein, McShea, Meincke, Moss, Newman, Pocheville, Plutynski, Sarkar, Sterner, Wimsatt

**Group 2: Experimental Measurement of Agency and Directionality (Aztec B)**

Moderator: Laura Nuño de la Rosa

Attendees: Daines, DiFrisco, Lennox, Linquist, Livnat, Lowe, Mangan, Patten, Reydon, Snell-Rood, Shaw, Soto, Strassman, Sultan, Uller, Wagner, Watson

**Group 3: Theoretical Assumptions in Evolutionary Models (Aztec B)**

Moderator: Max Dresow

Attendees: Adams, Allen, Bourrat, Desmond, Duckworth, Garson, Leite, Masel, Moreno, O'Connor, Oderberg, Okasha, Queller, Rosslénbroich, Skillings, Walsh



## Zoom links

### 1. Thursday 3, Friday 4 and Saturday 5 March 2022 – Lightning Talks

9:00-10:20 CST and 11:00-12:20 CST

<https://z.umn.edu/SanAntonioLightningTalks>

### 2. PI Lunch Meetings

12:30-14:00 CST

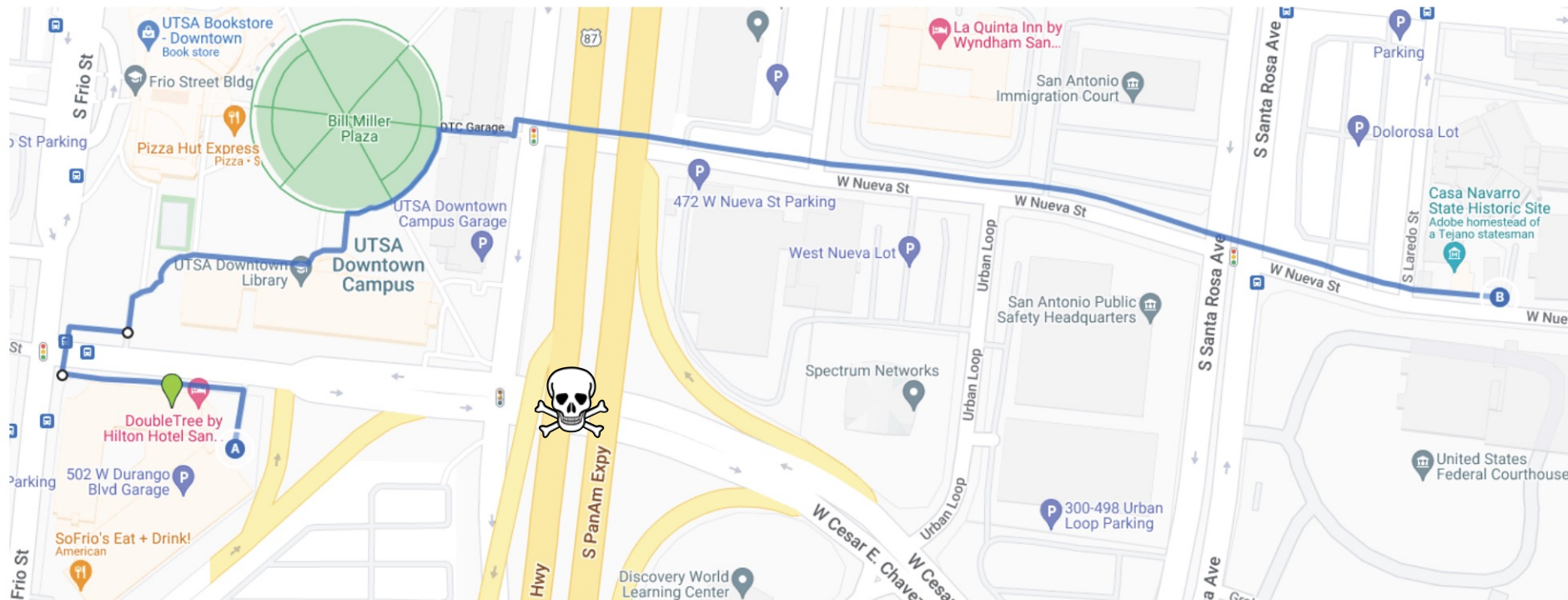
1. Thursday 3 March 2022 – Scientific Board of Advisors  
<https://z.umn.edu/PI-Lunch-Sci-Board-of-Advisors>
2. Friday 4 March 2022 – Cluster Coordinators  
<https://z.umn.edu/PI-Lunch-Sci-Cluster-Coordinators>
3. Saturday 5 March 2022 – Outside Commentators  
<https://z.umn.edu/PI-Lunch-Outside-Commentators>

### 3. Breakout Groups

	Thursday 3 March 2022 Breakout Groups	Friday 4 March 2022 Breakout Groups	Saturday 5 March 2022 Breakout Groups
14:00 CST	<a href="https://z.umn.edu/ThurGroup1-1400">https://z.umn.edu/ThurGroup1-1400</a>	<a href="https://z.umn.edu/FriGroup1-1400">https://z.umn.edu/FriGroup1-1400</a>	<a href="https://z.umn.edu/SatGroup1-1400">https://z.umn.edu/SatGroup1-1400</a>
	<a href="https://z.umn.edu/ThurGroup2-1400">https://z.umn.edu/ThurGroup2-1400</a>	<a href="https://z.umn.edu/FriGroup2-1400">https://z.umn.edu/FriGroup2-1400</a>	<a href="https://z.umn.edu/SatGroup2-1400">https://z.umn.edu/SatGroup2-1400</a>
	<a href="https://z.umn.edu/ThurGroup3-1400">https://z.umn.edu/ThurGroup3-1400</a>	<a href="https://z.umn.edu/FriGroup3-1400">https://z.umn.edu/FriGroup3-1400</a>	<a href="https://z.umn.edu/SatGroup3-1400">https://z.umn.edu/SatGroup3-1400</a>
15:45 CST	<a href="https://z.umn.edu/ThurGroup1-1545">https://z.umn.edu/ThurGroup1-1545</a>	<a href="https://z.umn.edu/FriGroup1-1545">https://z.umn.edu/FriGroup1-1545</a>	<a href="https://z.umn.edu/SatGroup1-1545">https://z.umn.edu/SatGroup1-1545</a>
	<a href="https://z.umn.edu/ThurGroup2-1545">https://z.umn.edu/ThurGroup2-1545</a>	<a href="https://z.umn.edu/FriGroup2-1545">https://z.umn.edu/FriGroup2-1545</a>	<a href="https://z.umn.edu/SatGroup2-1545">https://z.umn.edu/SatGroup2-1545</a>
	<a href="https://z.umn.edu/ThurGroup3-1545">https://z.umn.edu/ThurGroup3-1545</a>	<a href="https://z.umn.edu/FriGroup3-1545">https://z.umn.edu/FriGroup3-1545</a>	<a href="https://z.umn.edu/SatGroup3-1545">https://z.umn.edu/SatGroup3-1545</a>

# How will we proceed (and other details)?

## Walking Route to Downtown



To cross under Highway 10, take a left on W Cesar Chavez to S Frio and cross at the stoplight. Walk through the UTSA campus to W Nueva St, which has pedestrian access to the east side of Highway 10.



# How will we proceed (and other details)?

## Breakfast and Lunch Options

### Breakfast

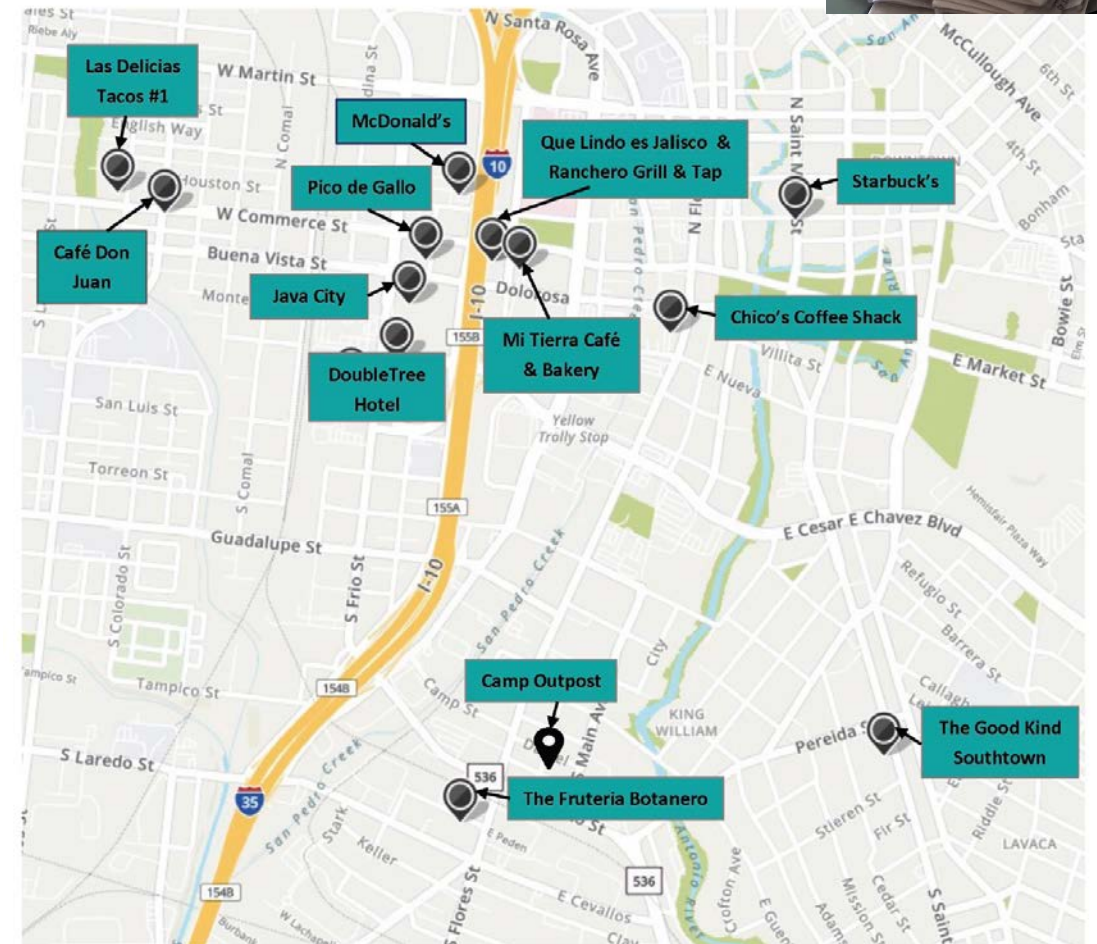
- Café Don Juan (1422 W Commerce St; 0.7 miles)
- Chico's Coffee Shack (119 S Flores St; 0.7 miles)
- Java City Coffee (In the UTSA Frio Street building; 310 S Frio St; 0.1 miles)
- Las Delicias Tacos #1 (1603 W Commerce St; 0.8 miles)
- McDonald's (703 W Houston St; 0.5 miles)
- Starbucks (200 E Houston St; 1.1 miles)
- Also available from the hotel

### Lunch

- Camp Outpost (1811 S Alamo St.; 1.1 miles)
- The Fruteria (1401 S Flores St; 1.1 miles)
- The Good Kind - Southtown (1127 S Saint Mary's St; 1.2 miles)
- Las Delicias Tacos #1 (1603 W Commerce St; 0.8 miles)
- Mi Tierra Café Y Panaderia (218 Produce Row; 0.5 miles)
- Pico de Gallo (111 S Leona St; 0.3 miles)
- Que Lindo Es Jalisco (612 W Commerce St (in Market Plaza Center); 0.5 miles)
- Rancho Grill & Tap (612 W Commerce St #F1; 0.5 miles)
- Also available from the hotel



## Restaurant locations



# How will we proceed (and other details)?



## Dinner

### Ácenar (146 E Houston St; 1.0 mile)

Attendees: Bourrat, Leite, Patten, Queller, Soto, Wagner, Wilson

### Azuca Nuevo Latino (709 S Alamo St; 1.6 miles)

Attendees: Allen, Donoghue, Gerson, Love, Lowe, Mangan

### Biga on the Banks (203 S Saint Mary's St; 1.0 mile)

Attendees: Ågren, Duckworth, Moss, Nuño de la Rosa, Rosslenbroich, Skillings

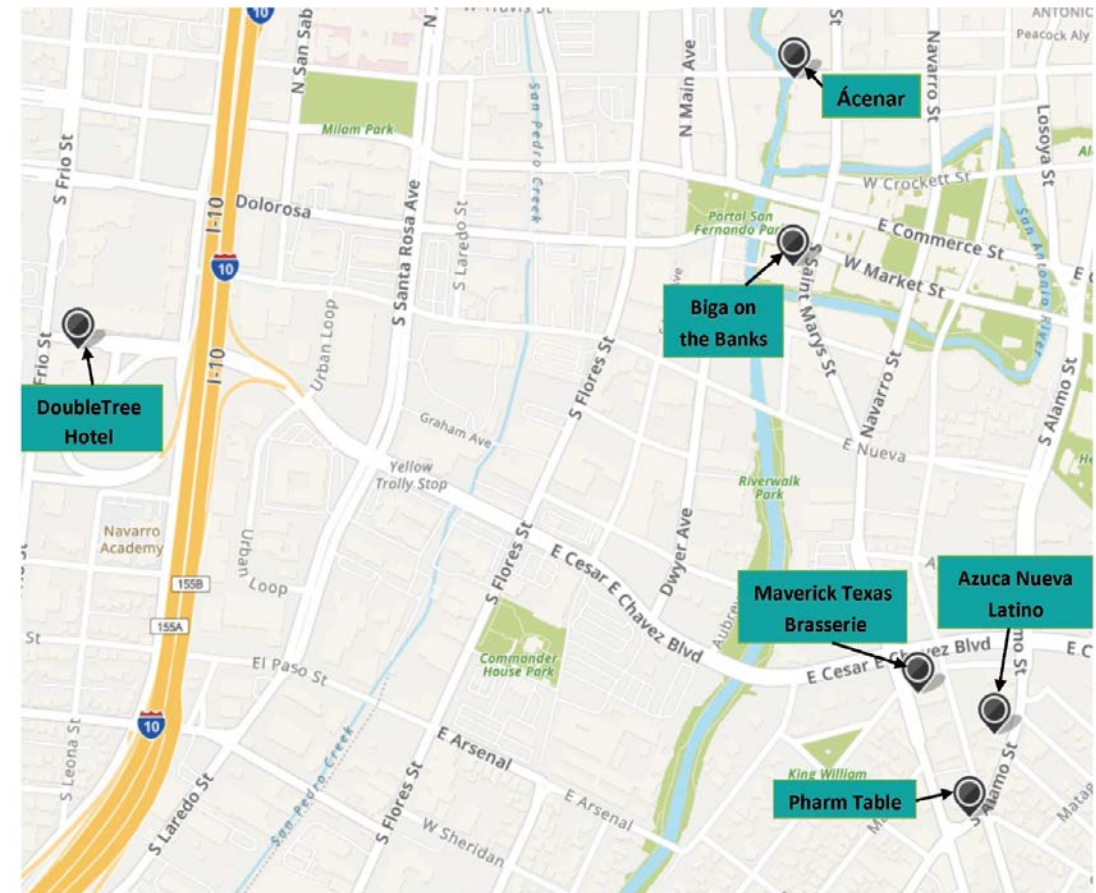
### Maverick Texas Brasserie (710 S Saint Mary's St; 1.4 miles)

Attendees: Ball, Bromer, Daines, Dresow, Garson, Plutynski, Reydon

### Pharm Table (812 S Alamo St; 1.1 miles)

Attendees: Desmond, Fontana, Griesemer, Linqvist, Livnat, Strassman

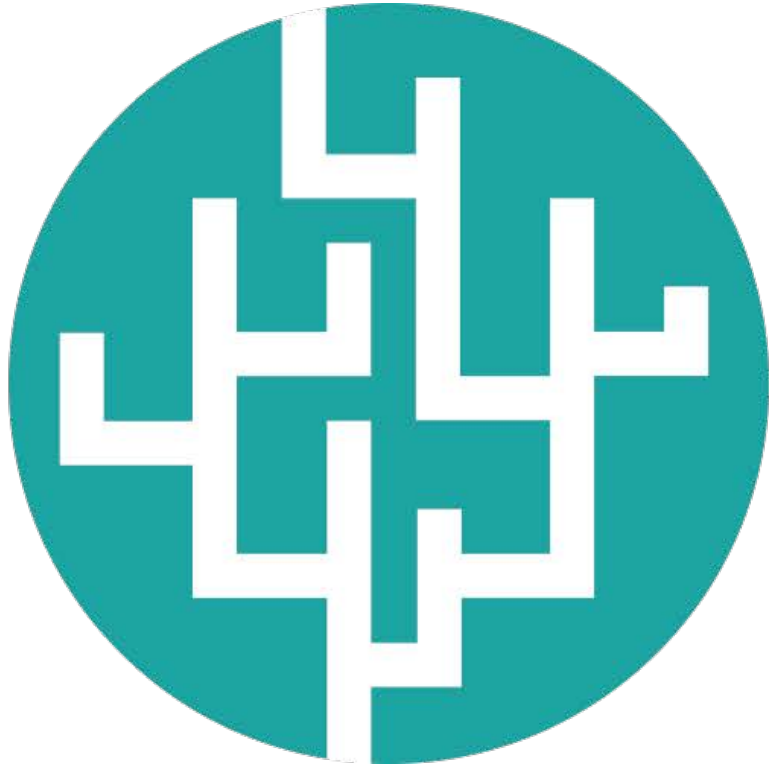
## Restaurant locations



# How will we proceed (and other details)?

- Minnesota staff team is available in Guadalupe during the summit
  - Peter Hundt is available to answer any questions related to open science and open access publishing. Please see his detailed overview in the dashboard of the website.
  - Keely can answer website questions virtually. Also, the dashboard Cluster Conversation feature is now operational. The conversation pages are open to all members of each cluster and have been set up to be a repository of documents, links, and conversations to avoid searching through cluttered email inboxes.
- Sociological team (James Griesemer, Elihu Gerson, Carol Bromer, and Ed Wilson) will be around during the summit and has a dedicated space in Nacional.
- Communications team (Michael Winikoff, Ivana Truong, Nate Johnson) will be seeking short interview times with different participants. They have a dedicated space in Zaragoza. Also, Michael will be taking some photos. (Just let him know if you would rather not have your picture taken.)
- Fire alarm today (no need to evacuate)!





# Agency Directionality & Function

Let us begin!

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