

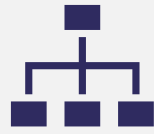
Adjective Use by Individuals with Agrammatic Primary Progressive Aphasia

THOMAS SOSTARICS
MATTHEW WALENSKI
M. MARSEL MESULAM
CYNTHIA K. THOMPSON



NORTHWESTERN
UNIVERSITY

Outline



Primary Progressive Aphasia
Adjectives & Adjuncts



Prior work



Current investigation

Primary Progressive Aphasia

PPA is a neurodegenerative disease affecting language capabilities but leaving other cognitive facilities relatively spared (Mesulam et al. 2012)

Three major subtypes with characteristic neurolinguistic & neuropathological profiles

(Gorno-Tempini et al. 2011; Thompson and Mack 2013; Ash et al., 2009; Thompson et al. 2012)

- Logopenic (PPA-L)
- Semantic (PPA-S)
- **Agrammatic (PPA-G)**

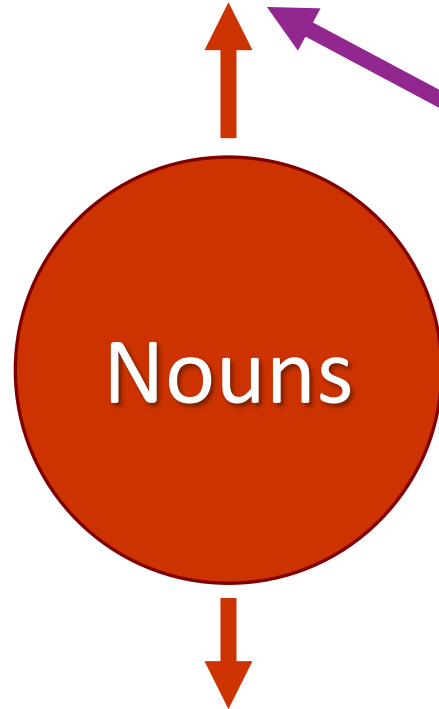
PPA-G characterized by:

- Effortful speech, ungrammatical sentence production
- Spared single word comprehension
- Impaired verbs, but relatively spared nouns in production

But, what about adjectives?

Adjectives (in English)

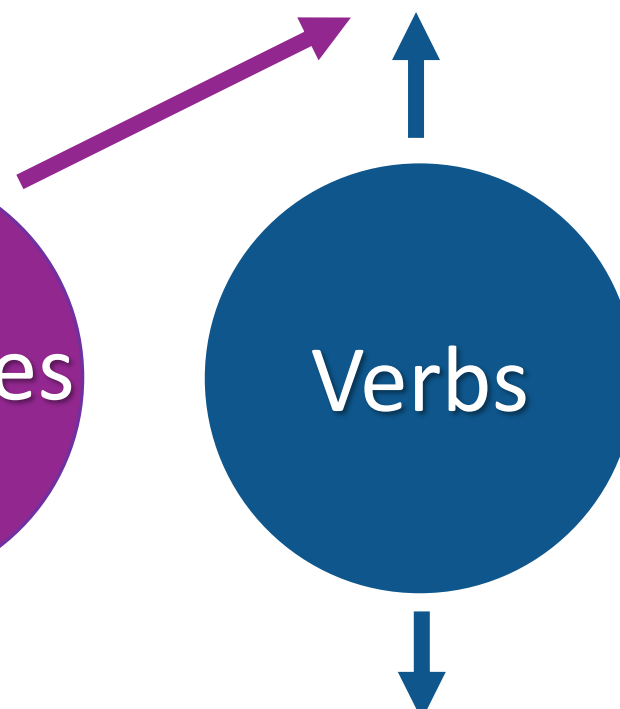
Don't inflect for tense
Don't show person agreement



Have a referential index

Adjectives

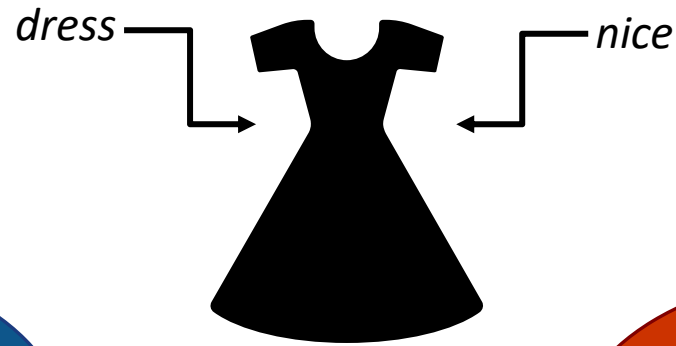
Can be sentential predicate
Often less imageable



Project structure for a subject

(Meltzer-Asscher and Thompson, 2014; Baker 2003)

Predicative vs Attributive Usage



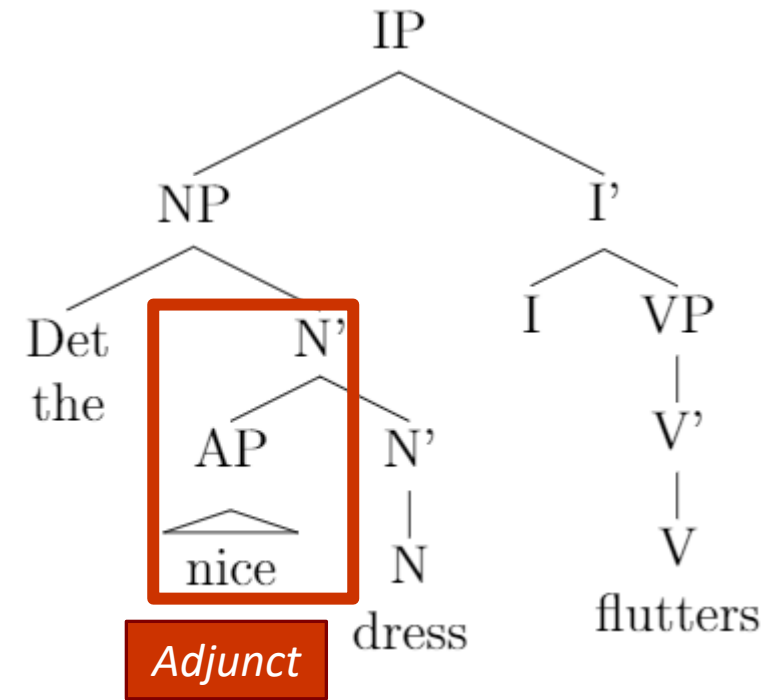
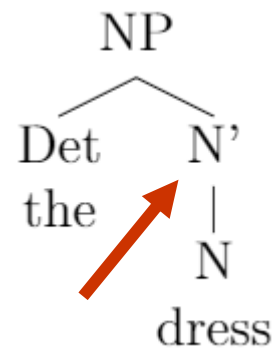
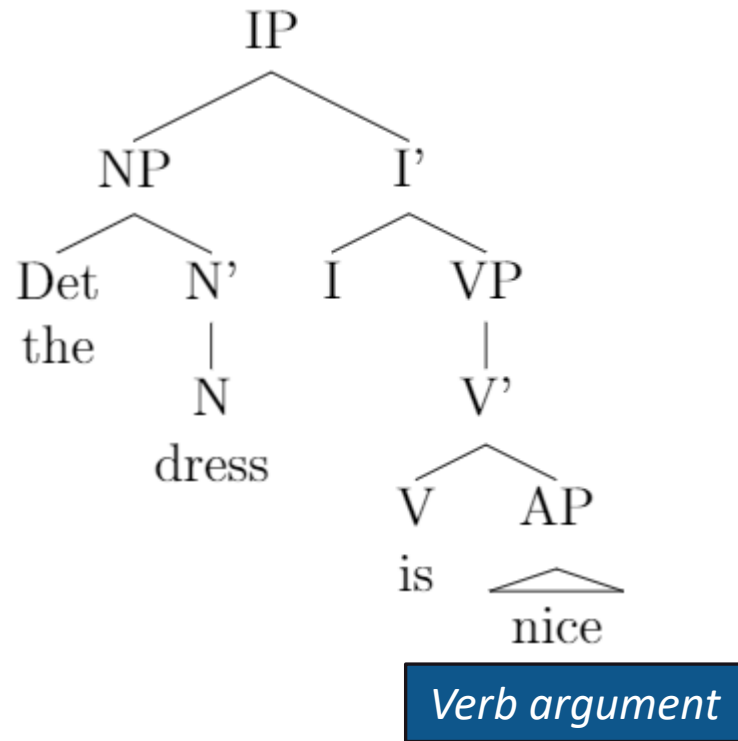
The dress
is nice

Predicative

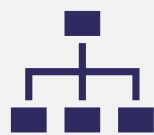
The nice
dress
flutters

Attributive

Adjunction



Outline



Primary Progressive Aphasia
Adjectives & Adjuncts



Prior work



Current investigation

Prior Work

Adjuncts are computationally more expensive than verb arguments

(Boland, 2005; Kennison, 2002; Lee and Thompson, 2011; Liversedge et al. 1998; Shutze & Gibson 1999)

Patients with agrammatism have deficits in building syntactic structures

(Friederici et al. 2003; Grewe et al. 2005)

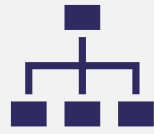
Patients with **stroke-induced** agrammatic aphasia use a greater proportion of predicative adjectives & fewer attributive adjectives compared to controls

(Meltzer-Asscher & Thompson, 2014)

Would the agrammatic **PPA** patients show a similar deficit profile with attributive adjectives?

Could this be attributed to a deficit in building adjunct structures?

Outline



Primary Progressive Aphasia
Adjectives & Adjuncts



Prior work



Current investigation



She's nice. Dusting (3 sec). Wash (3 sec). The old man (4 sec). Wicked uh sisters uh two three five uh. The horse (5 sec) dog uh bird (3 sec) mouse uh uh is (3 sec) cut (11 sec) dress (2 sec). Be (4 sec) alright. Pumpkin. Pull over uh uh. The uh prince (2 sec). The love uh. We dance (2 sec). Oh no uh noon. How uh get out uh uh? Shoe uh glass shoe (5 sec) found its uh uh. Pulling (3 sec) shoe uh. No ties. Yes. The end.

Cinderella narrative produced by a gentleman with agrammatic aphasia

From Thompson & Mack (2018)

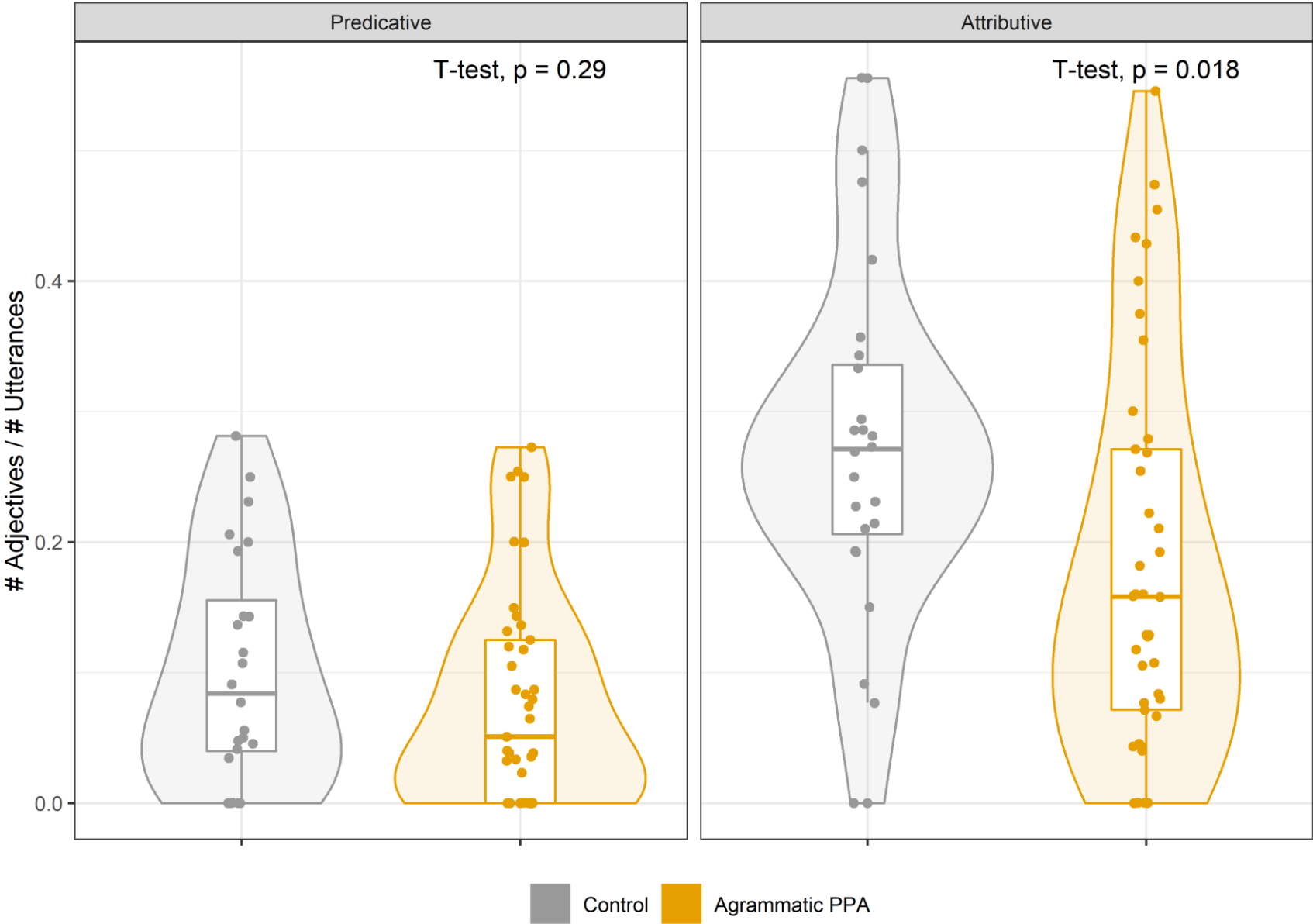
Current investigation

Group	N	Age [years]	Gender	Time since onset [years]	MMSE [/30]	WAB AQ [/100]
PPA-G	41	65.4 (7.68)	25 M / 16 F	3.86 (2.66)	24.8 (4.33)	83.5 (7.90)
Controls	24	62.4 (7.17)	13 M / 11 F		29.7 (.55)	99.8 (.53)

Narratives transcribed, adjectives coded as predicative or attributive

Utterance #	Utterance	Adjective	Predicative	Attributive
1	The nice dress is (uh) black	nice	0	1
1	The nice dress is (uh) black	black	1	0

Adjective Use - Normalized by # of Utterances



Relationship to Subject Clefts

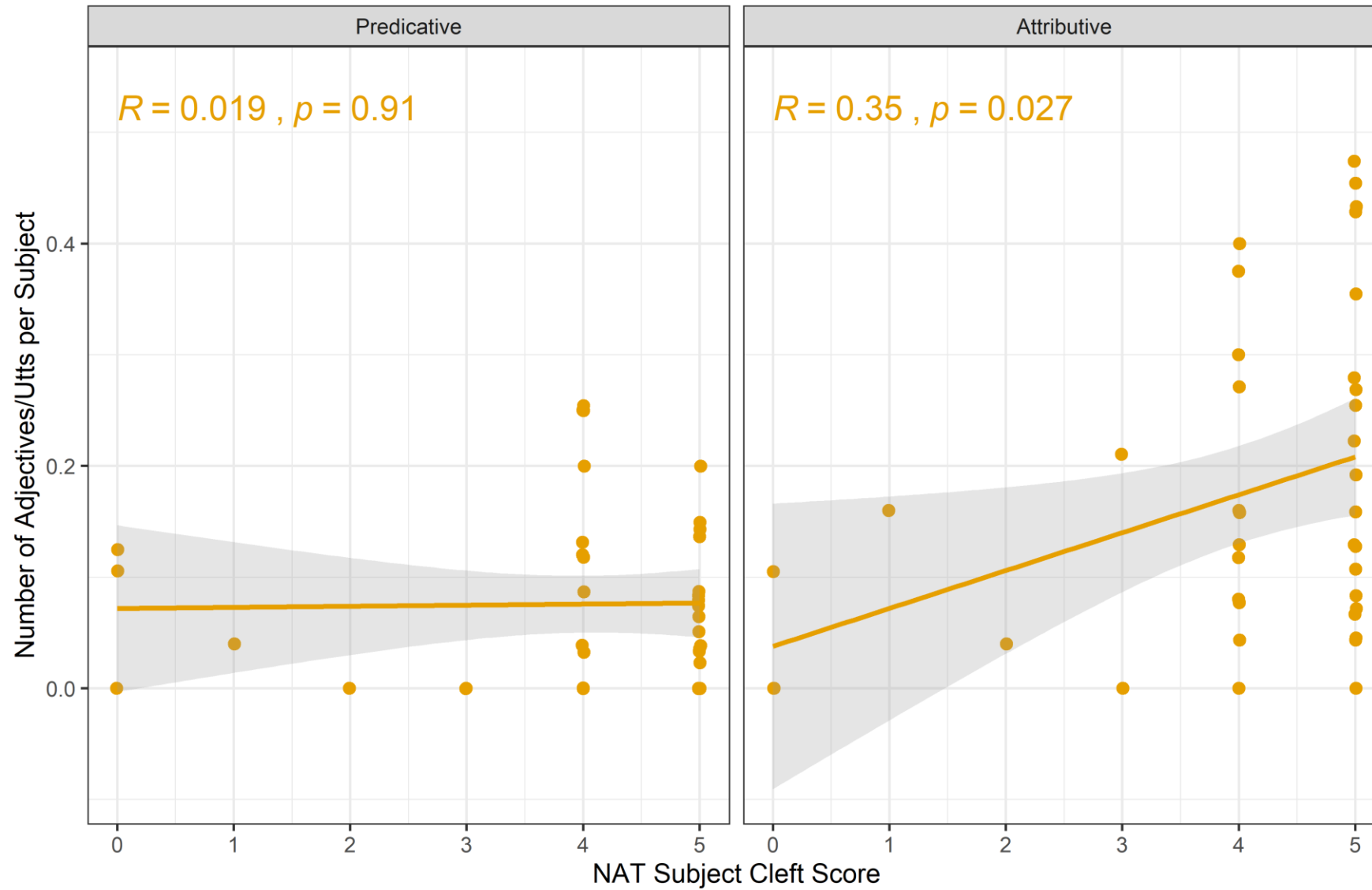
If attributive deficit reflects an adjunction deficit, could this correlate with other examples of adjunct structures?

Subject cleft: *It is the dress that is nice*

Subject clefts evaluated by Northwestern Anagram Test (NAT)

(Thompson, Weintraub, and Mesulam 2012)

Correlations between NAT Subject Cleft scores and Adjective Usage



■ Agrammatic PPA

Conclusions & Future directions

What we found:

- Deficit in *attributive* but not predicative adjective usage, like with agrammatic stroke patients (Meltzer-Asscher & Thompson, 2014)
- Attributive adjective usage correlates with subject cleft scores
- Perhaps related to the more difficult adjunct structure
- **This isn't necessarily an *adjective* issue but a *syntax* issue that affects adjectives**

What lies ahead:

- Comparison with other types of PPA (semantic, logopenic)
- Would different adjective functions interact differently with the adjunct deficit? (Cinque, 1994)
- Possible online measures of adjunct structures to further probe attributive adj-subj cleft relationship



NORTHWESTERN
UNIVERSITY



THANK YOU!



Research participants and families
Funding sources: NIH R01DC008552, R01DC01948
Cognitive Neurology and Alzheimer's Disease Center

Aphasia and Neurolinguistics Research Laboratory

- Principal Investigator

- Cynthia K. Thompson, Ph.D.

- Research Associates

- Matthew Walenski, Ph.D.
- Elena Barbieri, Ph.D.

- Visiting Fellow

- Haiyan Wang, Ph.D.
- Neda Mohammadi

- Ph.D. candidates

- Brianne Chiappetta
- Chien-Ju Hsu

- Research Staff

- Mary Cosic (Lab Manager)
- Nicole Vieyto (Lab Technician)