

UNIVERSITY OF CALIFORNIA SAN DIEGO

My title here

A dissertation submitted in partial satisfaction
of the requirements for the degree
Doctor of Philosophy

in

Bioinformatics & Systems Biology

by

Author Name

Committee in charge:

Professor One, Chair
Professor Two, Co-Chair
Professor Three
Professor Four
Professor Five

2023

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The Dissertation of Author Name is approved, and
it is acceptable in quality and form for publication
on microfilm and electronically.

University of California San Diego

2023

DEDICATION

...

This dissertation is dedicated to ...
and *Person*.

EPIGRAPH

This is an epigraph
about epigraphs.

- *Author Name*

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VITA

2012	High School Diploma University City High School
2012–2016	B.S. in Usefulness University of California, San Diego
2016–2023	Ph.D. in Bioinformatics & Systems Biology University of California, San Diego

PUBLICATIONS

Author names marked with † indicate shared first co-authorship.

Publications marked with \triangle are included in this text.

Author Name and Professor One. “My first publication.” *Journal of Publications*, 2020. \triangle

ABSTRACT OF THE DISSERTATION

My title here

by

Author Name

Doctor of Philosophy in Bioinformatics & Systems Biology

University of California San Diego, 2023

Professor One, Chair
Professor Two, Co-Chair

An abstract should provide a clear impression of the content and major divisions of the dissertation or thesis. Abstracts of doctoral dissertations must not exceed 350 words.

Introduction

Introduce the topic of your dissertation. What is the problem you solved? Why is it important?

0.1 Title of Chapter 1

Set the stage for this chapter. Provide background to the field and relevant citations. Provide a high level summary of what you did and what you found.

0.2 Title of Chapter 2

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed euismod, nisl quis aliquam ultricies, nunc nisl aliquet nunc, sed aliquam nisl nu.

0.3 Title of Chapter 3

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed euismod, nisl quis aliquam ultricies, nunc nisl aliquet nunc, sed aliquam nisl nu.

0.4 Conclusion

Briefly summarize your dissertation with your takeaways and future directions.

Chapter 1

Title of first chapter

Brief summary of this chapter here.

1.1 Introduction

Text here.

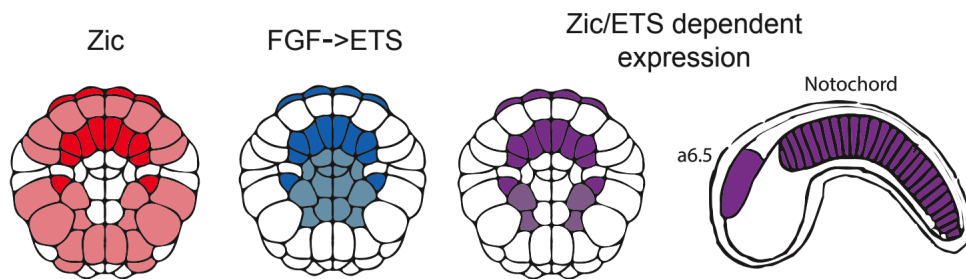


Figure 1.1. Figure caption detailing subpanels as necessary.

1.2 Results

1.2.1 Subsection title

Text here.

1.3 Discussion

In this study ...

1.3.1 Subsection title

1.4 STAR*Methods

1.4.1 Key resources table

Table 1.1. Key resources table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
<i>Deposited Data</i>		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
<i>Experimental Models: Organisms/Strains</i>		
<i>Ciona</i> intestinalis type A (<i>Ciona</i> robusta)	M-Rep	N/A
<i>Oligonucleotides</i>		
Oligonucleotides for library screen, see Table S1	This paper	N/A
Oligonucleotides for mutagenesis, see Table S4	This paper	N/A
<i>Recombinant DNA</i>		
Plasmid: BraS bpFog>GFP	Farley Lab	N/A
Plasmid: BraS -ZEE bpFog>GFP	This paper	N/A
Plasmid: BraS rZE bpFog>GFP	This paper	N/A
<i>Continued on next page</i>		

Table 1.1. Key resources table, *continued from previous page*

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Plasmid: BraS -FoxA bpFog>GFP	This paper	N/A
Plasmid: BraS -Bra bpFog>GFP	This paper	N/A
Plasmid: BraS rZEFB bpFog>GFP	This paper	N/A
Plasmid: Lama1 bpFog>GFP	This paper	N/A
Plasmid: Lama1 bpFog>GFP	This paper	N/A
Plasmid: Lama1 -E3 bpFog>GFP	This paper	N/A
Plasmid: Lama1 -Z bpFog>GFP	This paper	N/A
Plasmid: Lama1 RE3 bpFog>GFP	This paper	N/A
<i>Software and Algorithms</i>		
Python (version 3.8.6)	Python Software Foundation	https://www.python.org
Conda (version 4.9.2)	Anaconda, Inc.	https://docs.conda.io
Bioconda	Grüning et al., 2018	https://bioconda.github.io
Biopython (version 1.78)	Cock et al., 2009	https://biopython.org
FastQC (version 0.11.9)	Babraham Institute	https://www.bioinformatics.babraham.ac.uk
MultiQC (version 1.8)	Ewels et al., 2016	https://multiqc.info
FLASH (version 1.2.11)	Magoč et al., 2011	http://www.cbcb.umd.edu/software/flash
pandas (version 1.2.1)	NumFOCUS	https://pandas.pydata.org
<i>Continued on next page</i>		

Table 1.1. Key resources table, *continued from previous page*

REAGENT or RESOURCE	SOURCE	IDENTIFIER
numpy (version 1.20.3)	Harris et al., 2020	https://numpy.org
matplotlib (version 3.2.2)	Hunter, 2007	https://matplotlib.org
scikit-learn (version 0.24.1)	Pedregosa et al., 2011	https://scikit-learn.org
seaborn (version 0.11.1)	Waskom et al., 2021	https://seaborn.pydata.org
Diverse-Logics-Notochord-Study	Code used in this paper	RepoName Github

1.4.2 Resource availability

Lead contact

Further information and requests for resources and reagents should be directed to and will be fulfilled by the lead contact, Professor One (email@gmail.com).

Materials availability

Plasmids generated in this study are available upon request.

1.4.3 Experimental model and subject details

Tunicates

Adult *Ciona intestinalis type A*, also known as *Ciona robusta*, were obtained from M-Rep and were maintained under constant illumination in seawater (obtained from Reliant Aquariums) at 18°C. *Ciona* are hermaphroditic, therefore there is only one possible sex for individuals. Age or developmental stage of the embryos studied are indicated in the main text.

1.4.4 Method details

Library Construction

Details here.

GFP reporter assays

Details here.

1.5 Data and code availability

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1.6 Acknowledgments

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1.6.1 Author contributions

A.A.O. designed experiments. A.A.O. and A.B.T. conducted experiments. A.A.O. analyzed data. A.A.O. and A.B.T. wrote the manuscript.

1.6.2 Declaration of interests

The authors declare no competing interests.

Chapter 2

Title of second chapter

Brief summary of this chapter here.

2.1 Introduction

Text here.

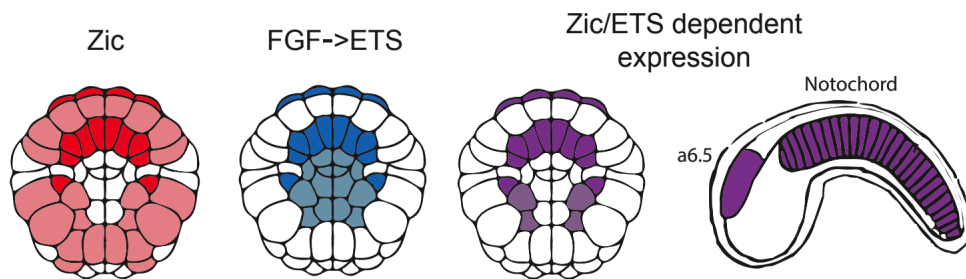


Figure 2.1. Figure caption detailing subpanels as necessary.

2.2 Results

2.2.1 Subsection title

Text here.

2.3 Discussion

In this study ...

2.3.1 Subsection title

2.4 STAR*Methods

2.4.1 Key resources table

Table 2.1. Key resources table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
<i>Deposited Data</i>		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
Data Info		
<i>Experimental Models: Organisms/Strains</i>		
<i>Ciona</i> intestinalis type A (<i>Ciona robusta</i>)	M-Rep	N/A
<i>Oligonucleotides</i>		
Oligonucleotides for library screen, see Table S1	This paper	N/A
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<i>Continued on next page</i>		

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FLASH (version 1.2.11)	Magoč et al., 2011	http://www.cbcb.umd.edu/software/flash
pandas (version 1.2.1)	NumFOCUS	https://pandas.pydata.org
<i>Continued on next page</i>		

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2.6.2 Declaration of interests

The authors declare no competing interests.

Chapter 3

Title of third chapter

Brief summary of this chapter here.

3.1 Introduction

Text here.

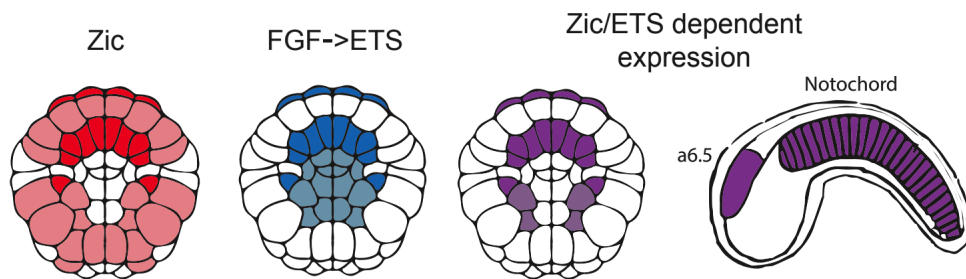


Figure 3.1. Figure caption detailing subpanels as necessary.

3.2 Results

3.2.1 Subsection title

Text here.

3.3 Discussion

In this study ...

3.3.1 Subsection title

3.4 STAR*Methods

3.4.1 Key resources table

Table 3.1. Key resources table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
<i>Deposited Data</i>		
Data Info		
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Data Info		
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Data Info		
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<i>Continued on next page</i>		

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REAGENT or RESOURCE	SOURCE	IDENTIFIER
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3.6.2 Declaration of interests

The authors declare no competing interests.

Epilogue

4.1 Conclusion

Conclusion here.

4.2 Limitations and Future Directions

Limitations and future directions here.

4.3 Closing thoughts

Closing thoughts here.

Appendix A

Supplemental Material for Chapter 1

A.1 Section name

A.1.1 Subsection name

Text here.

A.2 Supplementary Table Captions

The Supplementary Table can be found on the GitHub repository for this study labeled as `SupplementaryTable.xlsx` at the following location:

<https://github.com/Github/RepoName/>.

.....

Supplementary Table S1: Table title

Text here.

A.3 Supplementary Figures

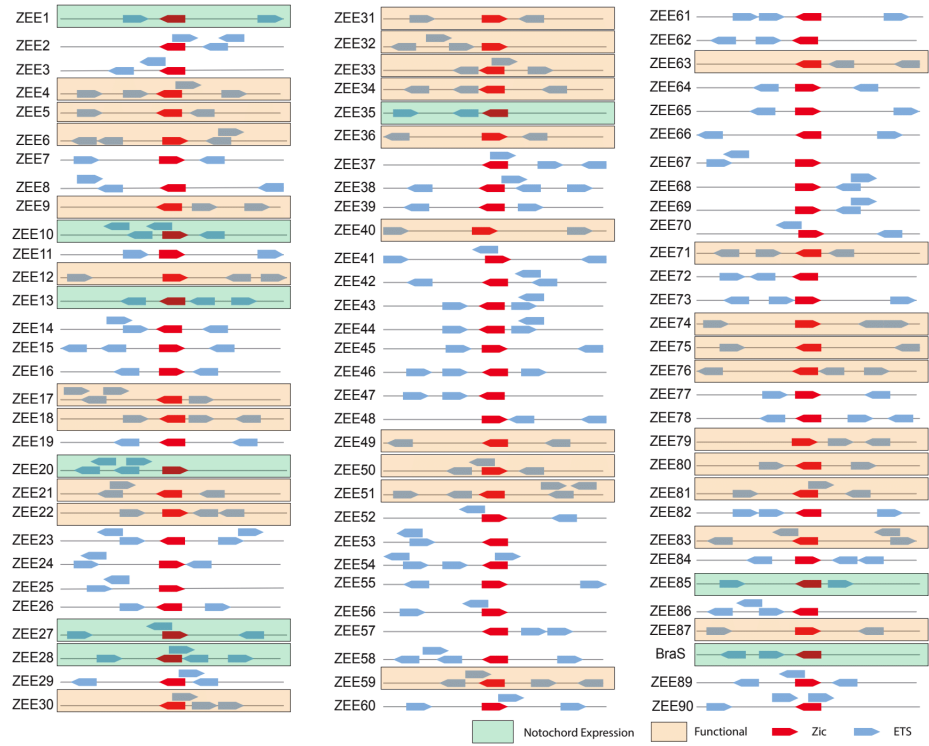


Figure A.1. Figure title. Text here.

Figure A.2. Text here (*Continued on next page.*)

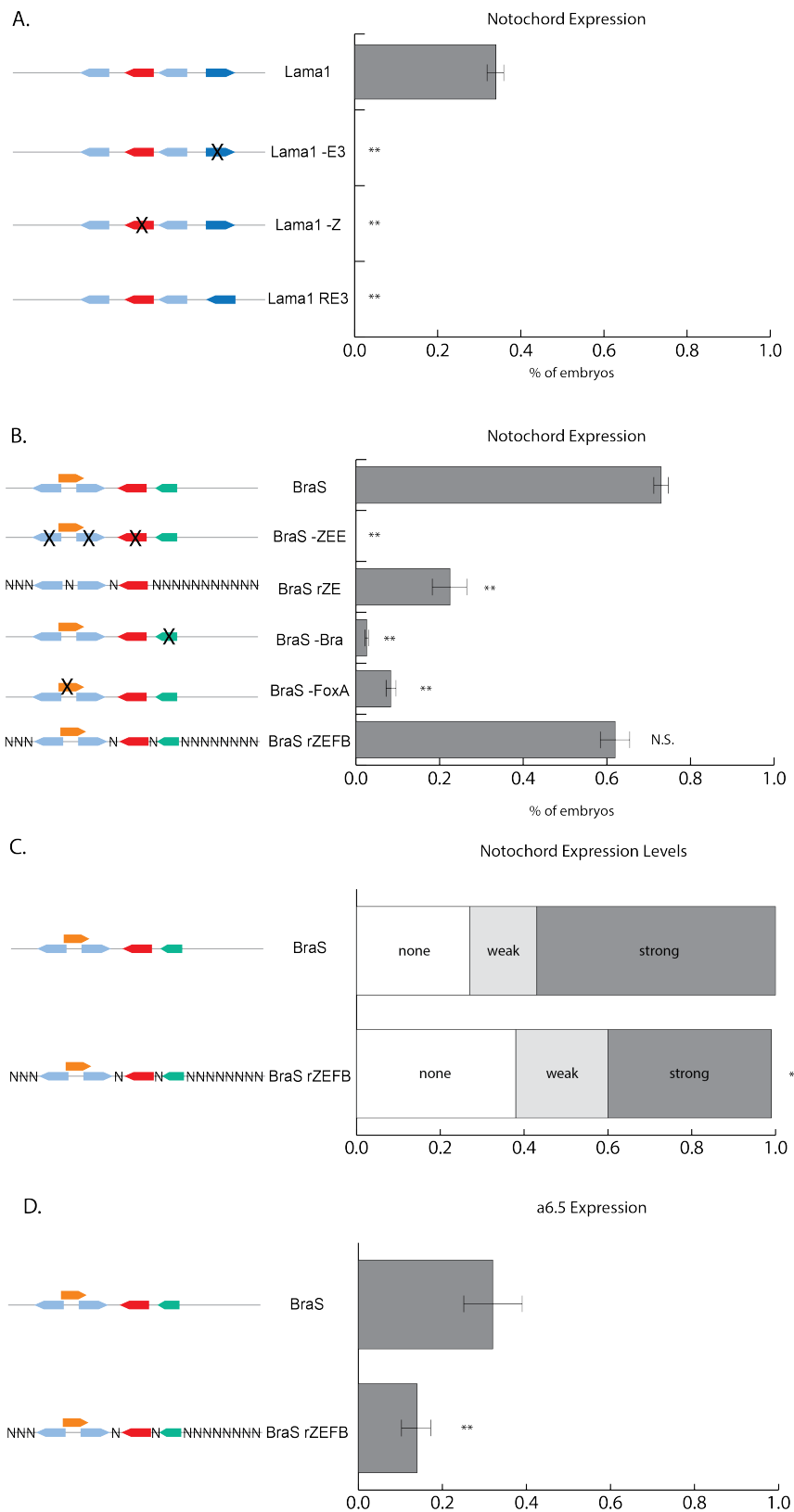


Figure A.2. (Continued from previous page.)

Appendix A

Supplemental Material for Chapter 2

A.1 Section name

A.1.1 Subsection name

Text here.

A.2 Supplementary Table Captions

The Supplementary Table can be found on the GitHub repository for this study labeled as `SupplementaryTable.xlsx` at the following location:

<https://github.com/Github/RepoName/>.

.....

Supplementary Table S1: Table title

Text here.

A.3 Supplementary Figures

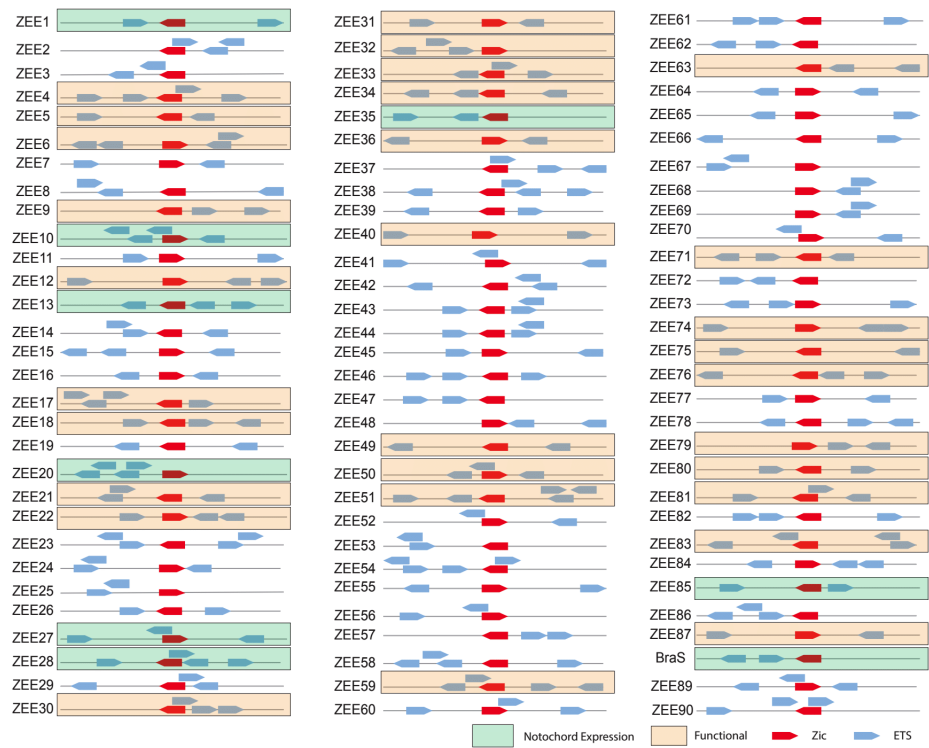


Figure A.1. Figure title. Text here.

Figure A.2. Text here (*Continued on next page.*)

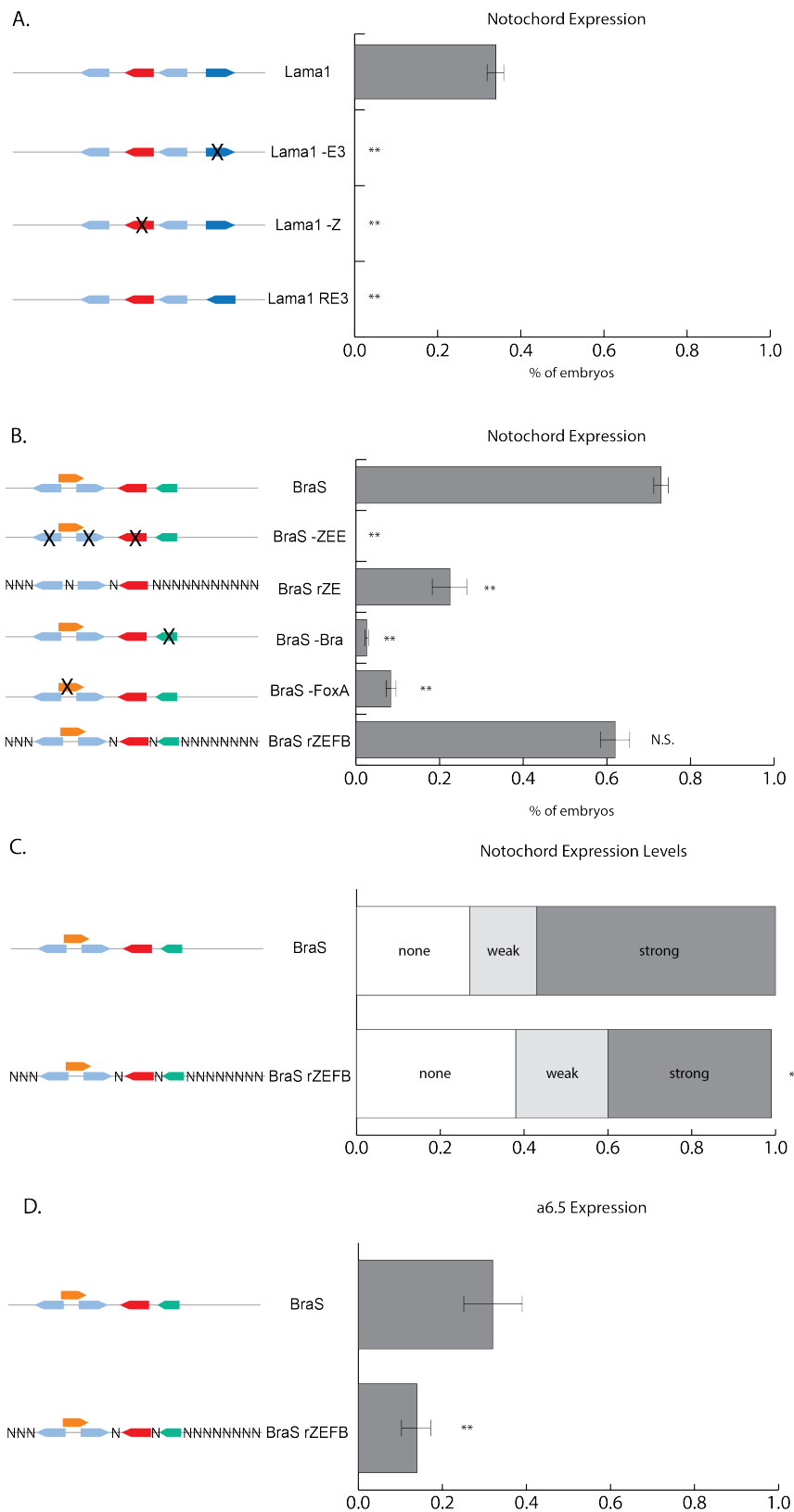


Figure A.2. (Continued from previous page.)

Appendix A

Supplemental Material for Chapter 3

A.1 Section name

A.1.1 Subsection name

Text here.

A.2 Supplementary Table Captions

The Supplementary Table can be found on the GitHub repository for this study labeled as `SupplementaryTable.xlsx` at the following location:

<https://github.com/Github/RepoName/>.

.....

Supplementary Table S1: Table title

Text here.

A.3 Supplementary Figures

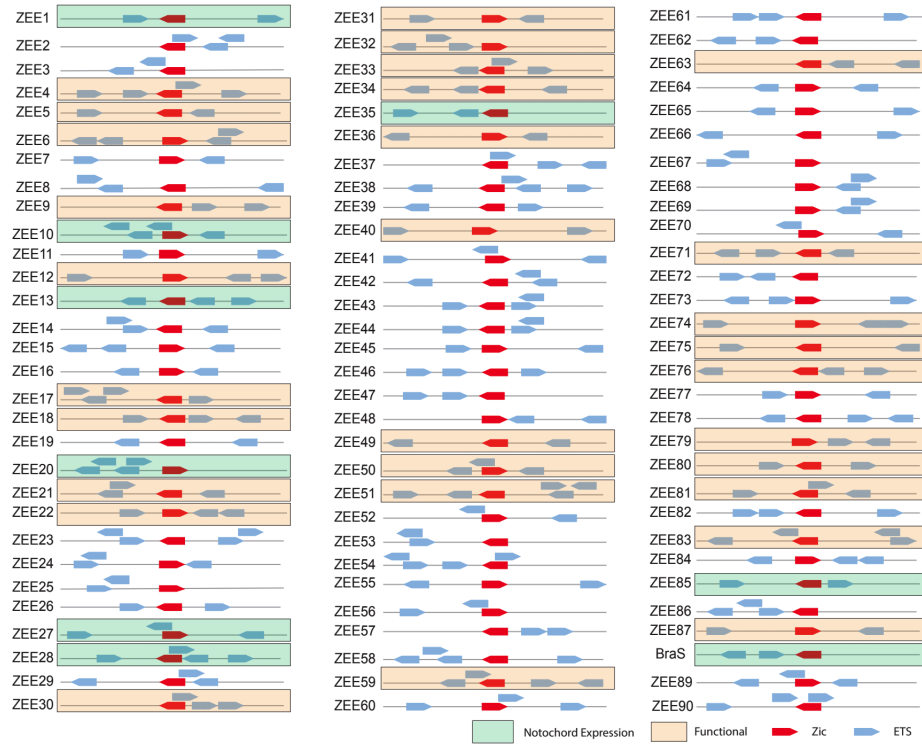


Figure A.1. Figure title. Text here.

Figure A.2. Text here (*Continued on next page.*)

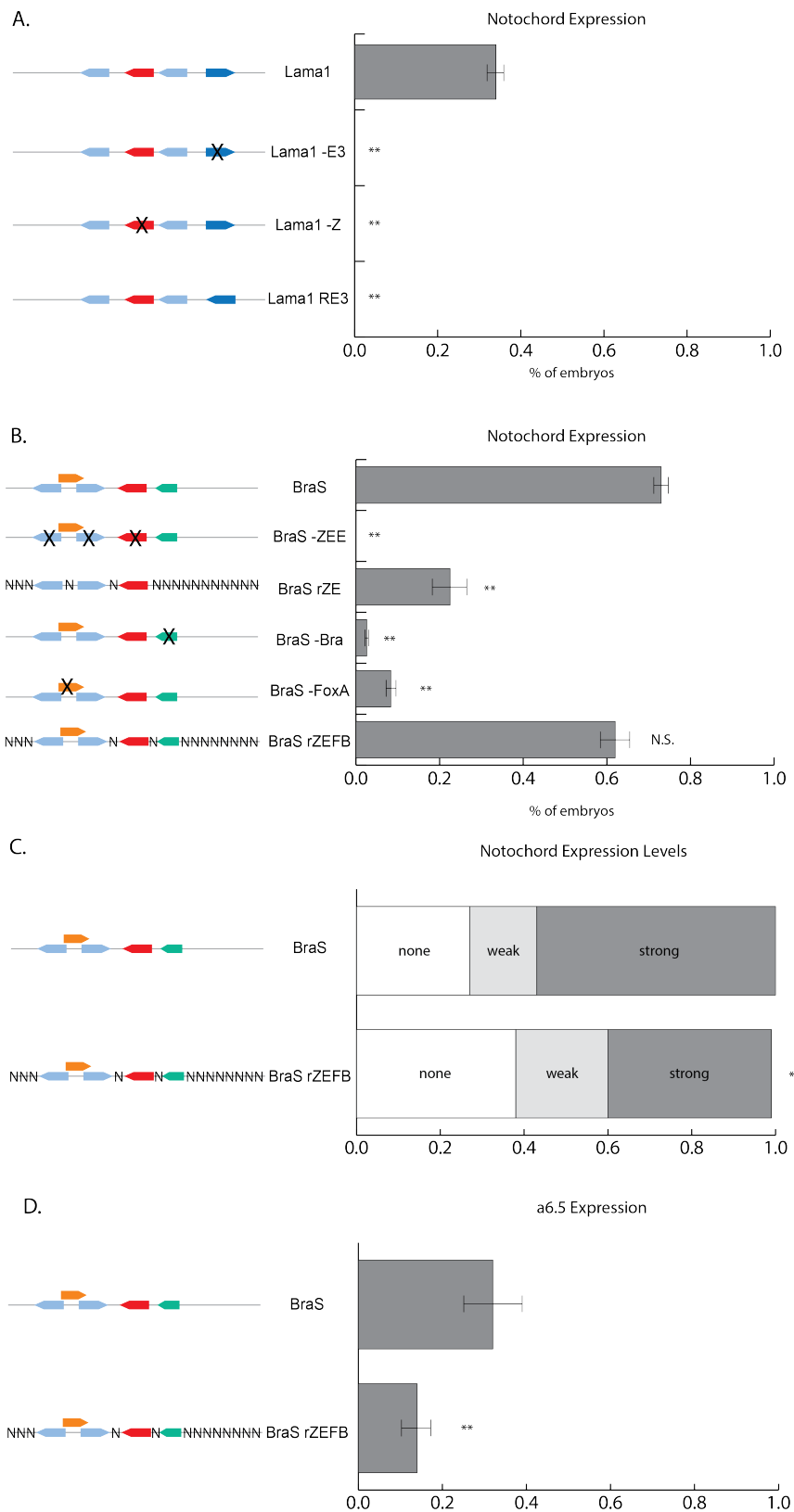


Figure A.2. (Continued from previous page.)

Bibliography