Figure number	Number Reported (When applicable, number reported as Average +/- SEM)	n value Number of Hearts	Pooled Cellular Number		p-values	Statistical test
1A	(Zebrafish) N/A	10 hearts	N/A	N/A	N/A	N/A
	(Mouse) N/A	6 hearts	N/A	N/A	N/A	N/A
	(Human) N/A	2 hearts	N/A	N/A	N/A	N/A
1B	N/A	8 hearts	N/A	N/A	N/A	N/A
1C	Type 1: 71.15 +/- 2.34 microns	8 hearts (10 processes)	13	5	Type 1 vs 2 vs 3: p<0.0001	One-Way ANOVA
	Type 2: 24.75 +/- 0.72 microns	8 hearts (10 processes)		5	Type 1 vs 2: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Type 3: 26.86 +/- 0.79 microns	8 hearts (5 processes)		3	Type 1 vs 3: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
					Type 2 vs 3: p=0.7240	One-way ANOVA followed by Tukey's post hoc test
1D	Type 1: 8.20 +/- 1.07 processes	8 hearts	13	5	Type 1 vs 2 vs 3: p<0.0001	One-Way ANOVA
	Type 2: 2.00 +/- 0.00 processes	8 hearts		5	Type 1 vs 2: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Type 3: 4.60 +/- 0.24 processes	8 hearts		3	Type 1 vs. 3: p=0.0044	One-way ANOVA followed by Tukey's post hoc test
1E	N/A	3 hearts	N/A	N/A	N/A	N/A
2A	N/A	4 hearts	N/A	N/A	N/A	N/A
2B	N/A	5 hearts	N/A	N/A	N/A	N/A
2C	N/A	10 hearts	N/A	N/A	N/A	N/A
2D	slc1a3b:nls-tdTomato: 81.12 +/- 5.05%	11 hearts	317	227	N/A	N/A
	GS: 18.91 +/- 5.59%	5 hearts		90	N/A	N/A
2E	slc1a3b:nls-tdTomato: 86.15 +/- 4.11%	11 hearts	247	218	N/A	N/A
	GS: 93.33 +/- 6.67%	5 hearts		29	N/A	N/A
2F	N/A	6 hearts	N/A	N/A	N/A	N/A
2G	N/A	21 hearts	N/A	N/A	N/A	N/A
2H	N/A	5 hearts	N/A	N/A	N/A	N/A
2I	6 dpf: 0.90 +/- 0.52% gfap+/mef2a+ cells	21 hearts	260	211	N/A	N/A
	Adult: 1.80 +/- 1.80% gfap+/mef2a+ cells	5 hearts		49		
2J	N/A	7 hearts	N/A	N/A	N/A	N/A
3A	N/A	5 hearts	N/A	N/A	N/A	N/A
3B	Primary: type 1=95.00 +/- 5.00%	5 hearts	5	5	primary vs secondary: p=0.0004	One-way ANOVA followed by Tukey's post hoc test
	Secondary: type 1=48.51 +/- 6.39%				secondary vs tertiary: p=0.0035	One-way ANOVA followed by Tukey's post hoc test
	Tertiary: type 1=18.29 +/- 3.68%				All groups: p<0.0001	One-Way ANOVA
3C	N/A	5 hearts	N/A	N/A	N/A	N/A
3D	Representative AcTub Intensity Peak Distance: 2-6 microns	1 heart	1	1	N/A	N/A
	Representative GFAP Intensity Peak Distance: 5-8 microns				N/A	N/A
3E	N/A	5 hearts (SV2) 6 hearts (synaptotagmin)	55	5 per heart	N/A	N/A
3F	Heart DMSO: 1.48 +/- 0.07 au	8 hearts	N/A	N/A	Heart DMSO vs MTZ: p<0.0001	Unpaired t-test
	Heart MTZ Treated: 0.08 +/- 0.02 au	8 hearts	N/A	N/A		
	Retina DMSO: 1.51 +/- 0.09 au	5 hearts	N/A	N/A	Retina DMSO vs MTZ: p=0.1499	Unpaired t-test
	Retina MTZ Treated: 1.29 +/- 0.10 au	5 hearts	N/A	N/A		
3G	DMSO: 0.25 +/- 0.16 axons	8 hearts	N/A	N/A	DMSO vs. MTZ: p<0.0001	Unpaired t-test
	MTZ: 6.88 +/- 0.30 axons	8 hearts				
	Control Ablation: 0.00 +/- 0.00 axons	5 hearts			Control vs Laser: p<0.0001	Unpaired t-test
	Laser Ablation: 7.25 +/- 1.03 axons	4 hearts				
3H	N/A	DMSO: 8 hearts, MTZ: 8 hearts	N/A	N/A	N/A	N/A
	N/A	Control: 5 hearts, Laser: 4 hearts	N/A	N/A	N/A	N/A
4A	N/A	N/A	N/A	N/A	N/A	N/A
4B	N/A	6 hearts per age group	N/A	N/A	N/A	N/A
4C	4 dpf: 2.08 +/- 0.40 nuclei	13 hearts	505	15	4 vs 5: p=0.1092	One-way ANOVA followed by Tukey's post hoc test
	5 dpf: 6.92 +/- 0.54 nuclei	12 hearts		42	5 vs 6: p=0.0108	One-way ANOVA followed by Tukey's post hoc test
	6 dpf: 13.77 +/- 1.20 nuclei	13 hearts		71	6 vs 2 mpf: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	2 mpf: 62.83 +/- 5.13 nuclei	6 hearts		377	All groups: p<0.0001	One-Way ANOVA
4D	4 dpf: OT = 96.34%, V =3.66%, A=0%	10 hearts	374	49	N/A	N/A
	5 dpf: OT = 65.78%, V =34.22%, A=0%	9 hearts		90		
	6 dpf: OT = 35.25%, V =39.33%, A=25.42%	10 hearts		235		
4E	4 dpf: 1.72 +/- 0.47 nuclei	11 hearts	210	19	4 vs 5: p=0.4729	One-way ANOVA followed by Tukey's post hoc test
	5 dpf: 3.31 +/- 0.81 nuclei	13 hearts		43	5 vs 6: p=0.0031	One-way ANOVA followed by Tukey's post hoc test
	6 dpf: 7.40 +/- 0.91 nuclei	20 hearts		148	All groups: p<0.0001	One-way ANOVA
4F	4 dpf: OT = 66.67%, V =33.33%, A=0.00%	6 hearts	46	8	N/A	N/A
	5 dpf: OT = 50.00%, V =37.50%, A=12.50%	4 hearts		9		
	6 dpf: OT = 41.67%, V =44.07%, A=14.26%	9 hearts		29		
4G	N/A	6 hearts	~30	~5 per heart	N/A	N/A
4H	N/A	N/A	N/A	N/A	N/A	N/A
4I	N/A	6 hearts	N/A	N/A	N/A	N/A
4J	Hindbrain derived = 81.87 +/- 1.27%	6 hearts	225	~37 per heart	hindbrain vs other: p<0.0001	Unpaired t-test
	Other = 18.13 +/- 1.26%					
4K	OT: 100%	5 hearts	29	9	N/A (all same values)	N/A
	Ventricle: 100%			14	N/A (all same values)	N/A
	Atrioventricular Valve: 100%			6	N/A (all same values)	N/A
4L	N/A	5 hearts	N/A	N/A	N/A	N/A
4M	Hindbrain: 1.67 +/- 0.88	3 hearts	46	5	Hindbrain vs Trunk: p=0.0023	Unpaired t-test
	Trunk: 10.25 +/- 1.11	4 hearts		41		
5A	Data analyzed from Asp et al. 2019 data set (neural crest cluster)	https://spatialtranscriptomics3d.shinyapps.io/Developmental_heart_d	N/A	N/A	N/A	N/A
5B	Data from Litvinukova et al. 2020 data set (neuronal cell cluster)	https://www.heartcellatlas.org/	N/A	N/A	N/A	N/A
5C	Data analyzed from Skelly et al. 2018 data set	N/A	N/A	N/A	N/A	N/A
5D	Data analyzed from Skelly et al. 2018 data set	N/A	N/A	N/A	N/A	N/A
	GFAP= 0.00% (main cluster), 1.8% (subcluster)					
	S100B= 3.40% (main cluster), 39.40% (subcluster)					
	Cdh11= 3.60% (main cluster), 36.70% (subcluster)					
	Id1= 20.50% (main cluster), 56.20% (subcluster)					
5E	N/A	id1: 6 hearts	N/A	N/A	N/A	N/A
	N/A	cdh11: 6 hearts	N/A	N/A	N/A	N/A
5F	Id1= 3.33 +/- 0.42 puncta	id1: 6 hearts	12	1 per heart	N/A	N/A
	Cdh11= 2.33 +/- 0.33 puncta	cdh11: 6 hearts		1 per heart		
5G	Data analyzed from Asp et al. 2019 data set (neural crest cluster)	https://spatialtranscriptomics3d.shinyapps.io/Developmental_heart_d	N/A	N/A	N/A	N/A
	Data from Litvinukova et al. 2020 data set (neuronal cell cluster)	https://www.heartcellatlas.org/			N/A	N/A
6A	Data analyzed from Asp et al. 2019 data set (neural crest cluster)	https://spatialtranscriptomics3d.shinyapps.io/Developmental_heart_d	N/A	N/A	N/A	N/A
6B	Data from Litvinukova et al. 2020 data set (neuronal cell cluster)	https://www.heartcellatlas.org/	N/A	N/A	N/A	N/A
6C	Data from Litvinukova et al. 2020 data set (neuronal cell cluster)	https://www.heartcellatlas.org/	N/A	N/A	N/A	N/A
6D	N/A	Brain: 5 hearts, Retina: 5 hearts	N/A	N/A	N/A	N/A
6E	N/A	6 hearts	N/A	N/A	N/A	N/A
6F	Meteorin= 4.33 +/- 0.42 puncta	6 hearts	6	1 per heart	N/A	N/A
6G	2 dpf= 9.50 puncta	2 dpf: 4 hearts	N/A	N/A	2 vs 4: p=0.0027	One-way ANOVA followed by Tukey's post hoc test
	4 dpf= 47.00 puncta	4 dpf: 5 hearts			4 vs 6: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	6 dpf= 133.00 puncta	6 dpf: 5 hearts			2 vs 4 vs 6: p<0.0001	One-Way ANOVA
6H	2 dpf: OT= 71.50%, Ventricle=26.84%, Atrium= 1.67%	2 dpf: 3 hearts	N/A	N/A	N/A	N/A
	4 dpf= OT= 33.49%, Ventricle=58.33%, Atrium= 8.18%	4 dpf: 3 hearts				
	6 dpf= OT= 28.01%, Ventricle=62.24%, Atrium= 9.75%	6 dpf: 3 hearts				
6I	N/A	N/A	N/A	N/A	N/A	N/A
7A	N/A	N/A	N/A	N/A	N/A	N/A
7B	N/A	metrn: 5 hearts, id1: 6 hearts, cdh11: 4 hearts	N/A	N/A	N/A	N/A
7C	6 mpf: 100% (wildtype), 100% (metrn+/-)	6 mpf: (wildtype: 10 alive, 0 dead) (metrn+/-: 6 alive, 0 dead)	N/A	N/A	N/A	N/A
	9 mpf: 90.00% (wildtype) 66.67% (metrn +/-)	9 mpf: (wildtype: 9 alive, 1 dead)(metrn+/-: 4 alive, 2 dead)				
	12 mpf: 80.00% 33.33% (metrn +/-)	12 mpf: (wildtype: 8 alive, 2 dead)(metrn+/-: 2 alive, 4 dead)				
7D	N/A	Wildtype: 14 hearts, metrn-/-: 16 hearts	N/A	N/A	N/A	N/A
7E	Wildtype: 10.29 +/- 1.05 cells	14 hearts	567	144	All groups: p<0.0001	One-Way ANOVA
	metrn+/-: 3.75+/- 0.80 cells	20 hearts		75	Wildtype vs metrn +/-: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	metrn -/-: 3.75 +/- 0.86 cells	16 hearts		60	Wildtype vs metrn -/-: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	metrn -/- + S31-201: 2.00 +/- 0.58 cells	3 hearts		6	metrn -/- vs metrn -/- + s31-201: p=0.9968	One-way ANOVA followed by Tukey's post hoc test
	DMSO: 11.83 +/- 1.45 cells	6 hearts		71		
	S31-201: 1.00 +/- 0.37 cells	6 hearts		6	DMSO vs S31-201: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	DMSO: 11.00 +/- 1.37 cells	6 hearts		66		
	CAS 457081-03-7: 0.83 +/- 0.31 cells	6 hearts		5	DMSO vs CAS: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	DMSO: 9.17 +/- 0.79 cells	6 hearts		55		
	Sc144: 13.17 +/- 1.35 cells	6 hearts		79	DMSO vs Sc144: p=0.5014	One-way ANOVA followed by Tukey's post hoc test
7F	3 dpf: Wash-In = 0.40 +/- 0.24 nuclei, Wash-Out = 10.20 +/- 0.86 nuclei	5 hearts per group	165	Wash in = 2, Wash out	N/A	N/A
	4 dpf: Wash-In = 2.40 +/- 0.51 nuclei, Wash-Out = 8.00 +/- 0.84 nuclei	5 hearts per group		Wash in = 12, Wash out	N/A	N/A
	3 dpf: Wash-In = 9.80 +/- 0.86 nuclei, Wash-Out = 2.2+/- 0.66 nuclei	5 hearts per group		Wash in = 49, Wash out	N/A	N/A
8A	DMSO: 129.40 +/- 1.33 bpm, MTZ: 155.10 +/- 1.50 bpm	DMSO: 7 hearts, MTZ: 7 hearts	N/A	N/A	DMSO vs MTZ: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Control Ablation: 131.4 +/- 1.15 bpm, Laser Ablation: 153.3 +/- 2.20 bpm	Control Ablation: 7 hearts, Laser Ablation: 7 hearts	N/A	N/A	Control Ablation vs Laser Ablation: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	WT: 130.90 +/- 0.94 bpm, metrn +/-: 142.00 +/- 2.03 bpm, metrn -/-: 133.58 +/- 2.25 bpm	WT: 14 hearts , metrn +/-: 21 hearts, metrn -/-: 14 hearts	N/A	N/A	WT vs metrn +/-: p=0.0002, Wt vs metrn: p=0.9756	One-way ANOVA followed by Tukey's post hoc test
	DMSO: 130.90 +/- 0.80 bpm, S31-201: 146.40 +/- 2.90 bpm	DMSO: 7 hearts, S31-201: 7 hearts	N/A	N/A	DMSO vs S31-201: p=0.0011	One-way ANOVA followed by Tukey's post hoc test
					All groups: p<0.0001	One-Way ANOVA
8B	Wildtype: 1.08 +/- 0.53% fibrillation	5 hearts	N/A	N/A	All groups: p<0.0008	One-Way ANOVA
	metrn +/-: 16.39 +/- 4.81% fibrillation	10 hearts			wildtype vs metrn +/-: p=0.1391	One-way ANOVA followed by Tukey's post hoc test
	metrn -/-: 29.07 +/- 6.39% fibrillation	6 hearts			wildtype vs metrn -/-: p=0.0037	One-way ANOVA followed by Tukey's post hoc test
	Control Ablation: 0.26 +/- 0.26% fibrillation	5 hearts			Control Ablation vs Laser Ablation: p=0.9708	One-way ANOVA followed by Tukey's post hoc test
	Laser Ablation: 4.77 +/- 2.52% fibrillation	5 hearts				
8C	N/A	4 hearts	N/A	N/A	N/A	N/A
8D	N/A	4 hearts	N/A	N/A	N/A	N/A
8E	N/A	4 hearts	N/A	N/A	N/A	N/A
8F	N/A	N/A	N/A	N/A	N/A	N/A
8G	Control: 129.20 +/- 1.88 bpm	5 hearts	N/A	N/A	All groups: p<0.0001	One-Way ANOVA
	Full Ablation: 151.80 +/- 1.50 bpm	5 hearts	N/A	N/A	Control vs Full: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Outflow Tract Ablation: 152.00 +/- 2.04 bpm	4 hearts	N/A	N/A	Full vs OT: p>0.9999	One-way ANOVA followed by Tukey's post hoc test
	Ventricular Ablation: 143.30 +/- 3.30 bpm	4 hearts	N/A	N/A	Full vs V: p=0.1340	One-way ANOVA followed by Tukey's post hoc test
	Atrium Ablation: 134.50 +/- 3.428 bpm	4 hearts	N/A	N/A	Full vs A: p=0.0008	One-way ANOVA followed by Tukey's post hoc test
9A	N/A	4 hearts	N/A	N/A	N/A	N/A
9B	DMSO: 126.10 +/- 0.96 bpm	7 hearts	N/A	N/A	All groups: p<0.0001	One-Way ANOVA
	Baseline Isoproterenol: 157.60 +/- 1.00 bpm	7 hearts	N/A	N/A	DMSO vs Iso: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Full Ablation: 132.60 +/- 1.69 bpm	5 hearts	N/A	N/A	Iso vs Full: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Outflow Tract Ablation: 129.60 +/- 2.11 bpm	5 hearts	N/A	N/A	Iso vs OT: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Ventricular Ablation: 153.70 +/- 2.51 bpm	6 hearts	N/A	N/A	Iso vs V: p=0.8249	One-way ANOVA followed by Tukey's post hoc test
	Plus Atrium Ablation: 157.20 +/- 2.22 bpm	5 hearts	N/A	N/A	Iso vs A: p>0.9999	One-way ANOVA followed by Tukey's post hoc test
	Plus metrn -/-: 113.60 +/- 4.37 bpm	5 hearts	N/A	N/A	Iso vs metrn -/-: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
9C	DMSO: 130.60 +/- 1.81 bpm	5 hearts	N/A	N/A	All groups: p<0.0001	One-Way ANOVA
	Baseline Carbachol: 54.29 +/- 5.02 bpm	7 hearts	N/A	N/A	DMSO vs Carb: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Full Ablation: 147.20 +/- 4.10 bpm	5 hearts	N/A	N/A	Carb vs Full: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Outflow Tract Ablation: 117.60 +/- 3.02 bpm	7 hearts	N/A	N/A	Carb vs OT: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	Plus Ventricular Ablation: 95.40 +/- 5.14 bpm	5 hearts	N/A	N/A	Carb vs V: p=0.0006	One-way ANOVA followed by Tukey's post hoc test
	Plus Atrium Ablation: 68.50 +/- 5.24 bpm	4 hearts	N/A	N/A	Carb vs A: p=0.6966	One-way ANOVA followed by Tukey's post hoc test
	Plus metrn -/-: 104.80 +/- 17.07 bpm	4 hearts	N/A	N/A	Carb vs metrn -/-: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
9D	metrn -/- + DMSO: 26.50 +/- 5.25% fibrillation	5 hearts	N/A	N/A	All groups: p<0.0001	One-Way ANOVA
	Baseline Isoproterol: 8.18 +/- 1.98% fibrillation	5 hearts	N/A	N/A	Baseln Isoproternol vs metrn -/- + Isoproternol: p<0.0001	One-way ANOVA followed by Tukey's post hoc test
	metrn -/- + Isoproternol: 62.55 +/- 7.50% fibrillation	5 hearts	N/A	N/A	Baseline carbachol vs metrn -/- + carbachol: p=0.8944	One-way ANOVA followed by Tukey's post hoc test
	Baseline Carbachol: 1.62 +/- 0.72% fibrillation	5 hearts	N/A	N/A	metrn -/- DMSO vs metrn -/- + isoproternol: p=0.0003	One-way ANOVA followed by Tukey's post hoc test
	metrn -/- + Carbachol: 9.84 +/- 4.56% fibrillation	5 hearts	N/A	N/A	metrn -/- DMSO vs metrn -/- + carbachol: p=0.2373	One-way ANOVA followed by Tukey's post hoc test
9E	N/A	N/A	N/A	N/A	N/A	N/A
S1-C	(zebrafish) N/A	6 hearts	N/A	N/A	N/A	N/A
S1-D	(mouse) N/A	10 hearts	N/A	N/A	N/A	N/A
S2-A	N/A	N/A	N/A	N/A	N/A	N/A
S2-B	Circularity: Wildtype= 0.8072, metrn -/-= 0.8042	5	N/A	N/A	Wildtype vs metrn -/-: p=0.8792	Unpaired t-test
	Roundness: Wildtype= 0.6670, metrn -/-= 0.6486				Wildtype vs metrn -/-: p=0.6774	
	Solidity: Wildtype= 0.9710, metrn -/-= 0.9784				Wildtype vs metrn -/-: p=0.1362	
	Aspect Ratio: Wildtype= 1.473, metrn -/-= 1.536				Wildtype vs metrn -/-: p=0.5643	
S2-C	Circularity: Wildtype= 0.8954, metrn -/-= 0.8874	5	N/A	N/A	Wildtype vs metrn -/-: p=0.5900	Unpaired t-test
	Roundness: Wildtype= 0.6798 , metrn -/-= 0.6542				Wildtype vs metrn -/-: p=0.5392	
	Solidity: Wildtype= 0.9878, metrn -/-= 0.9852				Wildtype vs metrn -/-: p=0.3950	
	Aspect Ratio: Wildtype= 1.491, metrn -/-= 1.540				Wildtype vs metrn -/-: p=0.6065	
S2-D	Circularity: Wildtype= 0.8562, metrn -/-= 0.8308	5	N/A	N/A	Wildtype vs metrn -/-: p=0.0779	Unpaired t-test
	Roundness: Wildtype= 0.6516, metrn -/-= 0.6366				Wildtype vs metrn -/-: p=0.7138	
	Solidity: Wildtype= 0.9764, metrn -/-= 0.9750				Wildtype vs metrn -/-: p=0.7968	
	Aspect Ratio: Wildtype= 1.611, metrn -/-= 1.605				Wildtype vs metrn -/-: p=0.8837	