

Experiment Log

Table of contents

0.1	tutl RNAi experiments	1
0.2	DS Probe experiments - v2	3
0.3	T4T5 MARCM experiments - Summer2025	4
0.4	T4T5 MARCM experiments - Autumn2025	5
0.5	CGP54626	6
0.6	Octopamine	8
0.7	Tests with the SS0324 T4T5 line	9

From October 2025, automatic logging to a google sheet was implemented. This [google sheet](#) contains the full experiment log from this date onwards.

0.1 tutl RNAi experiments

The original experiments with the `nested_RF_protocol`.

Table 1: Fly strains

Male	Female	Neuron Type	Effector
w;pJFRC28-10XUAS-IVS-GFP-p10 (su(Hw)attP5);GR_42F06	y,sc,v,sev; P{TRiP HMJ21587}(attP40);+	T4/T5	tutl RNAi, cytoplasmic GFP

i Note

PC = Preferred Contrast determined from Protocol 1 (P1). Either ON (light flash) or OFF (dark flash).

Table 2: Experiment log

Date	Time	Experiment Folder	Genotype	PC
2024_12_12	12_12	RNAi_ttl_2025/control/ON/2024_12_12_12	control	ON
2024_12_12	13_40	RNAi_ttl_2025/control/OFF/2024_12_12_13_40	control	OFF
2024_12_18	15_07	RNAi_ttl_2025/control/ON/2024_12_18_15_07	control	ON
2024_12_18	15_49	RNAi_ttl_2025/control/OFF/2024_12_18_15_49	control	OFF
2024_12_19	15_53	RNAi_ttl_2025/control/OFF/2024_12_19_15_53	control	OFF
2024_12_20	09_57	RNAi_ttl_2025/control/OFF/2024_12_20_09_57	control	OFF
2024_12_20	10_45	RNAi_ttl_2025/control/OFF/2024_12_20_10_45	control	OFF
2024_12_20	17_00	RNAi_ttl_2025/control/OFF/2024_12_20_17_00	control	OFF
2024_12_23	11_31	RNAi_ttl_2025/ttl/OFF/2024_12_23_11_31	tt23	OFF
2024_12_23	12_28	RNAi_ttl_2025/ttl/OFF/2024_12_23_12_28	tt23	OFF
2024_12_24	13_21	RNAi_ttl_2025/ttl/OFF/2024_12_24_13_21	tt24	OFF
2024_12_24	16_50	RNAi_ttl_2025/ttl/OFF/2024_12_24_16_50	tt24	OFF
2025_01_02	14_05	RNAi_ttl_2025/control/OFF/2025_01_02_14_05	control	OFF
2025_01_03	13_12	RNAi_ttl_2025/ttl/ON/2025_01_03_13_12	tt03	ON
2025_01_03	14_24	RNAi_ttl_2025/ttl/OFF/2025_01_03_14_24	tt03	OFF
2025_01_10	12_24	RNAi_ttl_2025/ttl/OFF/2025_01_10_12_24	tt10	OFF
2025_01_13	15_40	RNAi_ttl_2025/ttl/OFF/2025_01_13_15_40	tt13	OFF
2025_01_14	15_41	RNAi_ttl_2025/control/ON/2025_01_14_15_41	control	ON
2025_01_15	12_29	RNAi_ttl_2025/control/ON/2025_01_15_12_29	control	ON
2025_01_15	17_03	RNAi_ttl_2025/control/ON/2025_01_15_17_03	control	ON
2025_01_17	12_40	RNAi_ttl_2025/ttl/ON/2025_01_17_12_40	tt17	ON
2025_01_17	13_31	RNAi_ttl_2025/ttl/ON/2025_01_17_13_31	tt17	ON
2025_01_21	15_35	RNAi_ttl_2025/ttl/ON/2025_01_21_15_35	tt21	ON
2025_01_21	16_09	RNAi_ttl_2025/ttl/ON/2025_01_21_16_09	tt21	ON
2025_01_22	14_34	RNAi_ttl_2025/ttl/ON/2025_01_22_14_34	tt22	ON
2025_01_22	16_03	RNAi_ttl_2025/ttl/ON/2025_01_22_16_03	tt22	ON

Date	Time	Experiment Folder	Genotype	PC
2025_01_23	13_20	RNAi_ttl_2025/control/ON/2025_01_23_13_20	control	ON

0.2 DS Probe experiments - v2

Probed the direction selectivity of some little studied cell types using the `nested_rf_protocol` instead of the previous `DS_probe_protocol`.

Table 3: Fly strains

Male	Female	Neuron Type	Effector
SS00395	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	TmY3	cytoplasmic GFP
SS02701	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	TmY18	cytoplasmic GFP
SS2594	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	TmY5a	cytoplasmic GFP
SS03722	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	Tm5Y	cytoplasmic GFP

Table 4: Experiment log

Date	Time	Experiment Folder	Cell Type
2025_04_08	12_51	DS_v2/TmY3/2025_04_08_12_51	TmY3
2025_04_11	16_20	DS_v2/TmY3/2025_04_11_16_20	TmY3
2025_04_14	13_57	DS_v2/TmY3/2025_04_14_13_57	TmY3
2025_04_15	12_31	DS_v2/TmY18/2025_04_15_12_31	TmY18
2025_04_16	11_29	DS_v2/TmY18/2025_04_16_11_29	TmY18
2025_04_18	16_26	DS_v2/TmY18/2025_04_18_16_26	TmY18
2025_04_22	11_58	DS_v2/TmY5a/2025_04_22_11_58	TmY5a
2025_05_06	12_19	DS_v2/TmY5a/2025_05_06_12_19	TmY5a
2025_05_06	15_24	DS_v2/TmY5a/2025_05_06_15_24	TmY5a
2025_05_08	12_19	DS_v2/Tm5Y/2025_05_08_12_19	Tm5Y
2025_05_09	14_56	DS_v2/Tm5Y/2025_05_09_14_56	Tm5Y
2025_05_09	15_46	DS_v2/Tm5Y/2025_05_09_15_46	Tm5Y

0.3 T4T5 MARCM experiments - Summer2025

These were the first experiments where MARCM flies were used. The MARCM method was used as an alternative to RNAi to manipulate protein expression in T4/T5 cells. The MARCM method is a sparse labelling approach, so not all of the T4/T5 cells will contain the effector with the manipulation and GFP labelling, but the cells that do express GFP and the manipulation can be targeted for recording.

Mid-way through the experiments Jin Yong and Ed realised that the eyes of the flies were lighter than they would have expected, so they switched to using a w+ background flies to improve eye pigmentation and hopefully avoid any potential issues from the reduced eye pigmentation in the earlier w- flies.

The protocol was updated from that used for the RNAi experiments so that the background value was reduced to (4/15) from (6/15) to improve the contrast of the stimuli against the background.

Table 5: Fly strains

Male	Female	Neuron Type	Effector
FRT40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP
tutl[SK], FRT 40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP
w+; FRT40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP
w+; tutl[SK], FRT 40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP

Table 6: Experiment log

Date	Time	Experiment Folder	W+
2025_07_12	17_31	T4T5_Summer2025/2025_07_12_17_31	0
2025_07_14	16_18	T4T5_Summer2025/2025_07_14_16_18	0
2025_07_17	14_38	T4T5_Summer2025/2025_07_17_14_38	0
2025_07_17	15_05	T4T5_Summer2025/2025_07_17_15_05	0
2025_07_22	16_38	T4T5_Summer2025/2025_07_22_16_38	0
2025_07_22	18_15	T4T5_Summer2025/2025_07_22_18_15	0

Date	Time	Experiment Folder	W+
2025_07_23	13_34	T4T5_Summer2025/2025_07_23_13_34	0
2025_07_25	16_34	T4T5_Summer2025/2025_07_25_16_34	0
2025_07_29	14_11	T4T5_Summer2025/2025_07_29_14_11	0
2025_08_26	14_39	T4T5_Summer2025/2025_08_26_14_39	0
2025_08_26	16_31	T4T5_Summer2025/2025_08_26_16_31	0
2025_08_27	12_32	T4T5_Summer2025/2025_08_27_12_32	0
2025_08_27	16_02	T4T5_Summer2025/2025_08_27_16_02	0
2025_08_28	14_46	T4T5_Summer2025/2025_08_28_14_46	0
2025_09_03	11_18	T4T5_Summer2025/2025_09_03_11_18	0
2025_09_04	13_37	T4T5_Summer2025/2025_09_04_13_37	0
2025_09_05	15_51	T4T5_Summer2025/2025_09_05_15_51	0
2025_09_08	15_45	T4T5_Summer2025/2025_09_08_15_45	0
2025_09_09	12_16	T4T5_Summer2025/2025_09_09_12_16	0
2025_09_10	14_15	T4T5_Summer2025/2025_09_10_14_15	1
2025_09_10	16_11	T4T5_Summer2025/2025_09_10_16_11	1
2025_09_11	11_08	T4T5_Summer2025/2025_09_11_11_08	1
2025_09_11	12_49	T4T5_Summer2025/2025_09_11_12_49	1
2025_09_12	12_23	T4T5_Summer2025/2025_09_12_12_23	1
2025_09_12	12_40	T4T5_Summer2025/2025_09_12_12_40	1

0.4 T4T5 MARCM experiments - Autumn2025

Continuation of the MARCM experiments started in the summer. The protocol was adjusted to include bar flashes and an additional speed for the bar sweeps.

Table 7: Fly strains

Male	Female	Neuron Type	Effector
w+; FRT40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP
w+; tutl[SK], FRT 40A	hsFlp, 10XUAS-mCD8-GFP; tub-GAL80, FRT40A/CyO; 42F06-GAL4	T4/T5	MARCM, membrane bound GFP

Table 8: Experiment log

Date	Time	Experiment Folder	W+
2025_10_20	11_53	T4T5_autumn2025/2025_10_20_11_53	1
2025_10_20	12_18	T4T5_autumn2025/2025_10_20_12_18	1
2025_10_22	13_10	T4T5_autumn2025/2025_10_22_13_10	1
2025_10_22	13_51	T4T5_autumn2025/2025_10_22_13_51	1
2025_10_23	10_31	T4T5_autumn2025/2025_10_23_10_31	1
2025_10_23	13_53	T4T5_autumn2025/2025_10_23_13_53	1
2025_10_23	15_03	T4T5_autumn2025/2025_10_23_15_03	1
2025_10_24	12_49	T4T5_autumn2025/2025_10_24_12_49	1
2025_10_24	17_50	T4T5_autumn2025/2025_10_24_17_50	1
2025_10_28	13_54	T4T5_autumn2025/2025_10_28_13_54	1
2025_10_28	17_37	T4T5_autumn2025/2025_10_28_17_37	1
2025_10_29	09_21	T4T5_autumn2025/2025_10_29_09_21	1
2025_10_29	11_06	T4T5_autumn2025/2025_10_29_11_06	1
2025_10_30	10_47	T4T5_autumn2025/2025_10_30_10_47	1
2025_10_31	10_16	T4T5_autumn2025/2025_10_31_10_16	1
2025_11_03	11_54	T4T5_autumn2025/2025_11_03_11_54	1
2025_11_03	15_50	T4T5_autumn2025/2025_11_03_15_50	1
2025_11_04	10_01	T4T5_autumn2025/2025_11_04_10_01	1
2025_11_04	11_56	T4T5_autumn2025/2025_11_04_11_56	1
2025_11_05	10_10	T4T5_autumn2025/2025_11_05_10_10	1
2025_11_05	15_54	T4T5_autumn2025/2025_11_05_15_54	1
2025_11_05	18_33	T4T5_autumn2025/2025_11_05_18_33	1
2025_11_10	10_17	T4T5_autumn2025/2025_11_10_10_17	1
2025_11_10	11_43	T4T5_autumn2025/2025_11_10_11_43	1
2025_11_11	12_04	T4T5_autumn2025/2025_11_11_12_04	1
2025_11_13	11_03	T4T5_autumn2025/2025_11_13_11_03	1
2025_11_13	12_21	T4T5_autumn2025/2025_11_13_12_21	1
2025_11_17	09_44	T4T5_autumn2025/2025_11_17_09_44	1

0.5 CGP54626

Selective GABA-B receptor antagonist CGP54626 was applied to T4 and T5 cells to investigate the role of GABA-B receptor mediated inhibition on their receptive field properties.

The protocol was adjusted again - the square flash stimuli were removed from the second protocol and 2 faster speeds were added to the moving bar sweeps.

Table 9: Fly strains

Male	Female	Neuron Type	Effector
SS02344	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	T4	cytoplasmic GFP
SS25175	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	T5	cytoplasmic GFP

Table 10: Experiment log

Date	Time	Experiment Folder	Cell Type	Drug Application
2025_11_18	10_08	CGP54626/T4/pre/2025_11_18_10_08	T4	pre
2025_11_18	10_37	CGP54626/T4/post/2025_11_18_10_37	T4	post
2025_11_19	10_59	CGP54626/T4/pre/2025_11_19_10_59	T4	pre
2025_11_19	11_34	CGP54626/T4/post/2025_11_19_11_34	T4	post
2025_11_20	13_16	CGP54626/T4/pre/2025_11_20_13_16	T4	pre
2025_11_20	13_48	CGP54626/T4/post/2025_11_20_13_48	T4	post
2025_11_21	09_54	CGP54626/T4/pre/2025_11_21_09_54	T4	pre
2025_11_21	10_26	CGP54626/T4/post/2025_11_21_10_26	T4	post
2025_11_21	14_57	CGP54626/T4/pre/2025_11_21_14_57	T4	pre
2025_11_21	15_29	CGP54626/T4/post/2025_11_21_15_29	T4	post
2025_11_24	09_30	CGP54626/T5/pre/2025_11_24_09_30	T5	pre
2025_11_24	10_02	CGP54626/T5/post/2025_11_24_10_02	T5	post
2025_11_25	10_36	CGP54626/T5/pre/2025_11_25_10_36	T5	pre
2025_11_25	11_13	CGP54626/T5/post/2025_11_25_11_13	T5	post
2025_11_25	15_52	CGP54626/T5/pre/2025_11_25_15_52	T5	pre
2025_11_25	16_24	CGP54626/T5/post/2025_11_25_16_24	T5	post
2025_12_02	09_27	CGP54626/T5/pre/2025_12_02_09_27	T5	pre
2025_12_02	10_06	CGP54626/T5/post/2025_12_02_10_06	T5	post
2025_12_03	09_34	CGP54626/T5/pre/2025_12_03_09_34	T5	pre
2025_12_03	10_08	CGP54626/T5/post/2025_12_03_10_08	T5	post
2025_12_03	13_32	CGP54626/T5/pre/2025_12_03_13_32	T5	pre
2025_12_03	14_09	CGP54626/T5/post/2025_12_03_14_09	T5	post
2025_12_04	10_22	CGP54626/T4/pre/2025_12_04_10_22	T4	pre
2025_12_04	11_00	CGP54626/T4/post/2025_12_04_11_00	T4	post

Table 11: Experiment log - duplicates experiments

Date	Time	Experiment Folder	Drug Application
2025_12_01	10_29	CGP54626/pre/2025_12_01_10_29	pre
2025_12_01	11_46	CGP54626/pre/2025_12_01_11_46	pre
2025_12_01	15_18	CGP54626/pre/2025_12_01_15_18	pre
2025_12_01	15_43	CGP54626/pre/2025_12_01_15_43	pre
2025_12_01	16_01	CGP54626/pre/2025_12_01_16_01	pre
2025_12_02	08_59	CGP54626/pre/2025_12_02_08_59	pre
2025_11_19	11_17	CGP54626/post/2025_11_19_11_17	post
2025_11_19	11_51	CGP54626/post/2025_11_19_11_51	post
2025_11_20	14_06	CGP54626/post/2025_11_20_14_06	post
2025_11_21	10_44	CGP54626/post/2025_11_21_10_44	post
2025_11_21	15_46	CGP54626/post/2025_11_21_15_46	post
2025_11_24	10_28	CGP54626/post/2025_11_24_10_28	post

0.6 Octopamine

The same protocol as used for the CGP54626 experiments was used to investigate the effect of octopamine application on T4 and T5 cell receptive field properties.

Table 12: Fly strains

Male	Female	Neuron Type	Effector
SS02344	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	T4	cytoplasmic GFP
SS25175	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	T5	cytoplasmic GFP

Table 13: Experiment log

Date	Time	Experiment Folder	Cell Type	Drug Application
2025_12_08	10_43	Octopamine/pre/2025_12_08_10_43	T4	pre
2025_12_08	11_15	Octopamine/post/2025_12_08_11_15	T4	post
2025_12_09	13_17	Octopamine/pre/2025_12_09_13_17	T4	pre
2025_12_09	13_51	Octopamine/post/2025_12_09_13_51	T4	post
2025_12_09	14_26	Octopamine/wash/2025_12_09_14_26	T4	wash
2025_12_12	09_23	Octopamine/pre/2025_12_12_09_23	T4	pre
2025_12_12	09_58	Octopamine/post/2025_12_12_09_58	T4	post

Date	Time	Experiment Folder	Cell Type	Drug Application
2025_12_16	12_07	Octopamine/pre/2025_12_16_12_07	T4	pre
2025_12_16	12_41	Octopamine/post/2025_12_16_12_41	T4	post
2025_12_17	09_18	Octopamine/pre/2025_12_17_09_18	T4	pre
2025_12_17	09_57	Octopamine/post/2025_12_17_09_57	T4	post
2025_12_19	10_15	Octopamine/pre/2025_12_19_10_15	T5	pre
2025_12_19	10_55	Octopamine/post/2025_12_19_10_55	T5	post
2025_12_19	11_12	Octopamine/post/2025_12_19_11_12	T5	post
2025_12_22	09_33	Octopamine/pre/2025_12_22_09_33	T5	pre
2025_12_22	10_08	Octopamine/post/2025_12_22_10_08	T5	post

0.7 Tests with the SS0324 T4T5 line

These experiments were done to test whether the mixed T4/T5 split GAL4 line cells responded differently to the single T4 or T5 split GAL4 lines used previously since some differences in the control / baseline responses of T4/T5 cells were observed when running the CGP54626 experiments.

Table 14: Fly strains

Male	Female	Neuron Type	Effector
SS00324	w+(DL);;pJFRC28-10XUAS-IVS-GFP-p10(attP2)	T4/T5	cytoplasmic GFP

Table 15: Experiment log

Date	Time	Experiment Folder	PC
2025_12_17	14_03	SS0324_T4T5/OFF/2025_12_17_14_03	OFF
2025_12_17	15_01	SS0324_T4T5/OFF/2025_12_17_15_01	OFF