

**Table EV1. Quality of sequencing samples**

Table shows details of the sequenced samples generated in this study. Replicates are biological replicates. Numbers following underscores link H3K27me3, H3K9me2 and H3K27m1 ChIP samples with their corresponding H3 and input samples.

Sample Details	total TRIMMED reads	mapped reads	map efficiency %	n of reads after deduplication	Col specific reads	Ler specific reads	Observed Col reads / Total	Expected Col reads / Total	% Contamination (C)
<b>cross (Col x Ler)</b>									
Input_1 Replicate 1	24,787,822	16,116,996	65.0	12,411,796	2,018,223	899,761	0.69	0.66	3.9
H3_1 Replicate 1	30,350,422	21,208,631	69.9	15,622,026	2,526,185	1,053,964	0.71	0.66	
H3K27me3_1 Replicate 1	24,167,338	15,397,847	63.7	12,168,470	2,228,295	757,833	0.75	0.66	
Input_2 Replicate 1	29,511,597	20,368,028	69.0	15,508,128	2,654,606	1,019,155	0.72	0.66	9.2
H3_2 Replicate 1	22,424,269	16,041,830	71.5	10,987,746	1,781,000	683,120	0.72	0.66	
H3K9me2_2 Replicate 1	22,810,664	10,583,269	46.4	7,366,446	1,406,695	499,526	0.74	0.66	
H3K27me1_2 Replicate 1	26,332,484	14,079,291	53.5	9,383,672	1,691,799	670,240	0.72	0.66	
Input_1 Replicate 2	31,577,892	20,599,337	65.2	13,163,007	2,180,612	936,117	0.70	0.66	5.2
H3_1 Replicate 2	22,046,368	15,824,550	71.8	13,929,052	2,260,008	970,079	0.70	0.66	
H3K27me3_1 Replicate 2	25,449,421	17,581,951	69.1	14,361,535	2,677,102	912,337	0.75	0.66	
Input_2 Replicate 2	34,745,820	23,807,143	68.5	20,900,785	3,646,187	1,318,711	0.73	0.66	11.3
H3_2 Replicate 2	39,063,203	28,213,681	72.2	23,886,553	4,045,037	1,462,567	0.73	0.66	
H3K9me2_2 Replicate 2	39,513,738	14,425,995	36.5	11,285,270	2,257,687	740,785	0.75	0.66	
H3K27me1_2 Replicate 2	38,767,698	18,277,539	47.1	15,327,137	2,895,097	1,086,645	0.73	0.66	
<b>cross (Ler x Col)</b>									
Input_1 Replicate 1	18,078,217	11,661,930	64.5	8,383,298	608,775	1,469,701	0.29	0.33	6.5
H3_1 Replicate 1	13,096,461	8,932,081	68.2	7,612,629	531,600	1,306,479	0.29	0.33	
H3K27me3_1 Replicate 1	13,950,783	8,654,509	62.0	7,429,692	493,761	1,493,996	0.25	0.33	
Input_2 Replicate 1	34,085,923	21,914,585	64.3	17,357,154	1,376,384	2,984,119	0.32	0.33	2.7
H3_2 Replicate 1	30,875,744	21,108,773	68.4	16,437,148	1,248,844	2,748,956	0.31	0.33	
H3K9me2_2 Replicate 1	28,052,613	9,224,657	32.9	6,900,284	683,606	1,479,156	0.32	0.33	
H3K27me1_2 Replicate 1	29,958,359	14,180,901	47.3	10,279,629	953,806	1,841,390	0.34	0.33	
Input_1 Replicate 2	39,484,632	25,263,787	64.0	20,968,361	1,596,121	3,680,170	0.30	0.33	4.8
H3_1 Replicate 2	40,133,143	27,482,291	68.5	21,624,259	1,563,126	3,659,101	0.30	0.33	
H3K27me3_1 Replicate 2	42,779,941	24,985,487	58.4	18,030,487	1,223,283	3,773,456	0.24	0.33	
H3K9me2_1 Replicate 2	33,037,695	11,650,082	35.3	8,829,379	849,536	1,833,631	0.32	0.33	
H3K27me1_1 Replicate 2	40,121,446	20,839,556	52.0	17,170,073	1,482,845	3,058,591	0.33	0.33	
<b>vegetative tissue (leaf)</b>									
Input_1_leaf Replicate 1	19,616,055	14,544,525	74.1	13,236,908					
H3_1_leaf Replicate 1	14,160,938	10,297,487	72.7	9,836,187					
H3K27me3_1_leaf Replicate 1	23,671,839	19,162,954	81.0	16,650,370					
H3K9me2_1_leaf Replicate 1	20,218,154	10,429,703	51.6	9,540,874					
Input_2_leaf Replicate 1	31,058,139	17,380,018	56.0	7,716,027					
H3_2_leaf Replicate 1	34,708,175	19,836,909	57.2	15,430,233					
H3K27m1_2 Replicate 1	30,339,670	10,142,645	33.4	6,045,970					
Input_1_leaf Replicate 2	18,931,702	14,086,197	74.4	12,584,084					
H3_1_leaf Replicate 2	21,762,984	15,997,167	73.5	15,062,569					
H3K27me3_1_leaf Replicate 2	15,906,872	13,892,998	87.3	11,877,197					
H3K9me2_1_leaf Replicate 2	13,192,610	5,057,922	38.3	4,388,003					