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Read Depth Analyses

For all 15 strains of the *Armillaria gallica* fungus the global average read depths and the total number of sites, based on the reference genome, are shown in table 1.

Table 1. Gobal Average Read Depths and Number of Reads for Each Strain

Strain	Global Average Read Depth	Total Global Number of Reads
Ar73	111.0507	69955093
Ar109	117.6863	70143802
Ar119	112.4868	70015910
Ar142	109.3741	70068064
Ar159	104.3773	69875550
Ar170	112.3987	70033946
Ar174	113.4283	70022954
Ar175	73.79959	69545937
Ar176	73.21531	69583274
Ar179	117.2196	70061598
Ar188	63.61699	68627951
Ar194	67.88522	69488072
Ar196	113.9182	70027951
Ar201	68.39596	69488227
Ar213	110.9612	69988055

Table 1 shows that all fifteen strains which we can work with have a similar number of sites which reads were aligned to. This number of aligned reads was between 68.6 million and 70.1 million for all strains. The global average read depths (average read depth of all sites where reads were aligned) varied much more. The low end for global average read depths was for the strain Ar188 which had an average of 63.6 reads, when reads were aligned, and the high end for average read depth was 117.7 for the strain Ar109. Hao had mentioned that Ar 188 was not used in his analyses because it was different in some way to the other strains. Ar188 is the strain with the lowest number of reads and lowest total number of reads aligned.

The average number of reads within strains was also calculated, these results can be found in figures 1, 2, 3, 4, and 5.
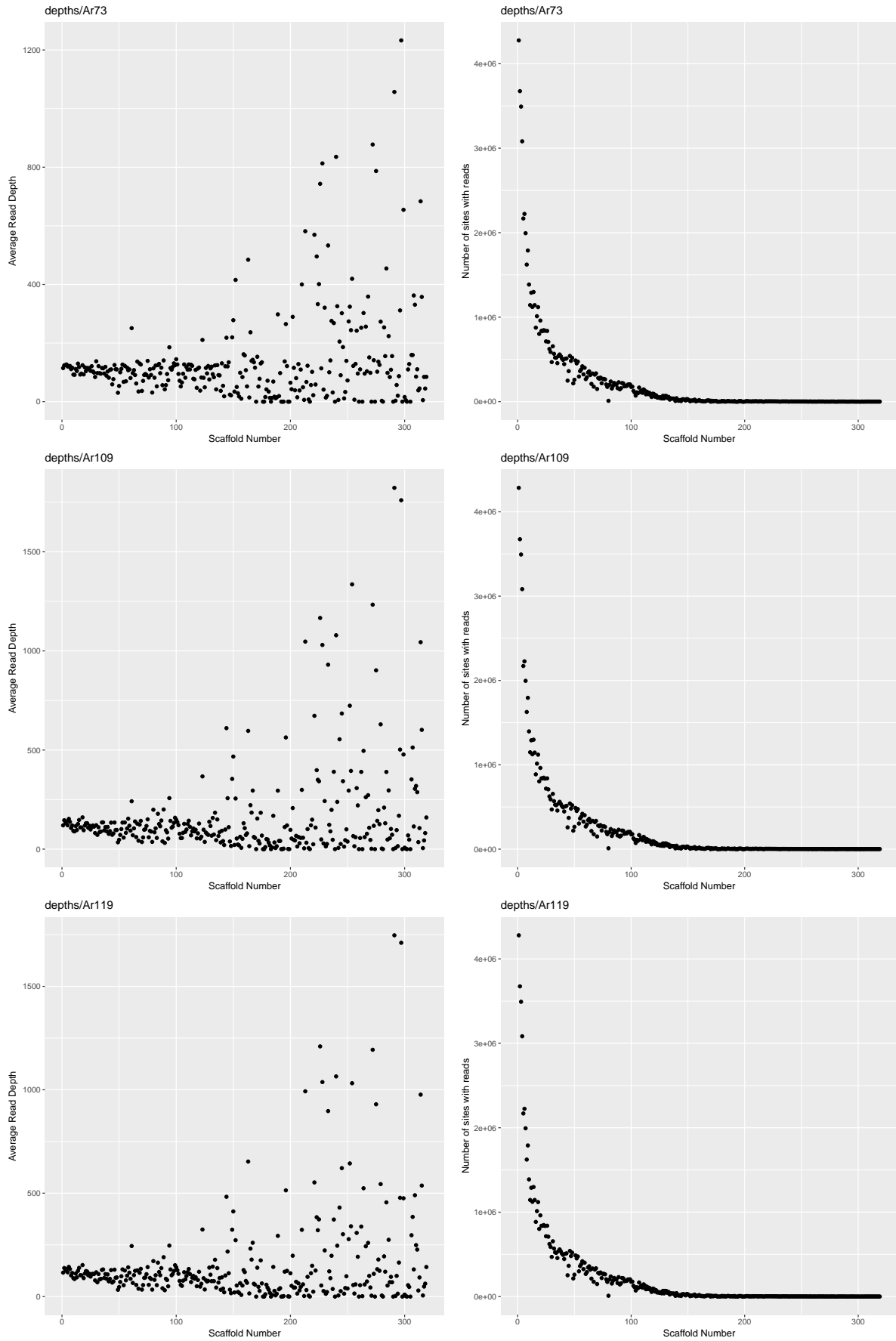
Figure 1. Average Read Depth Per scaffold, Ar:73, 109, 119. Graphs on the left are the average read depth vs scaffold number and graphs on the right are the total number of sites with reads aligned to them per scaffold.
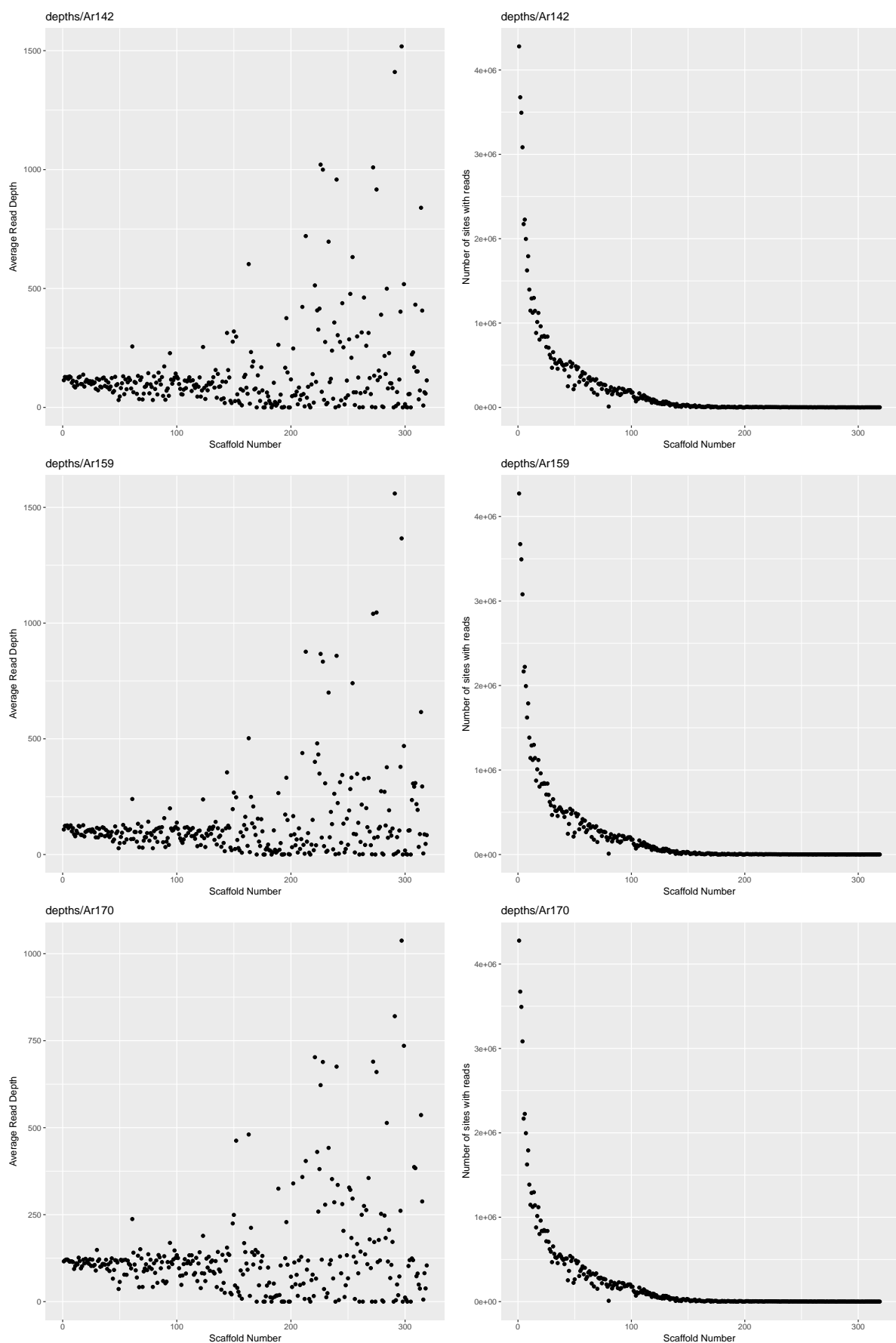
Figure 2. Average Read Depth Per scaffold, Ar: 142, 159, 170. Graphs on the left are the average read depth vs scaffold number and graphs on the right are the total number of sites with reads aligned to them per scaffold.
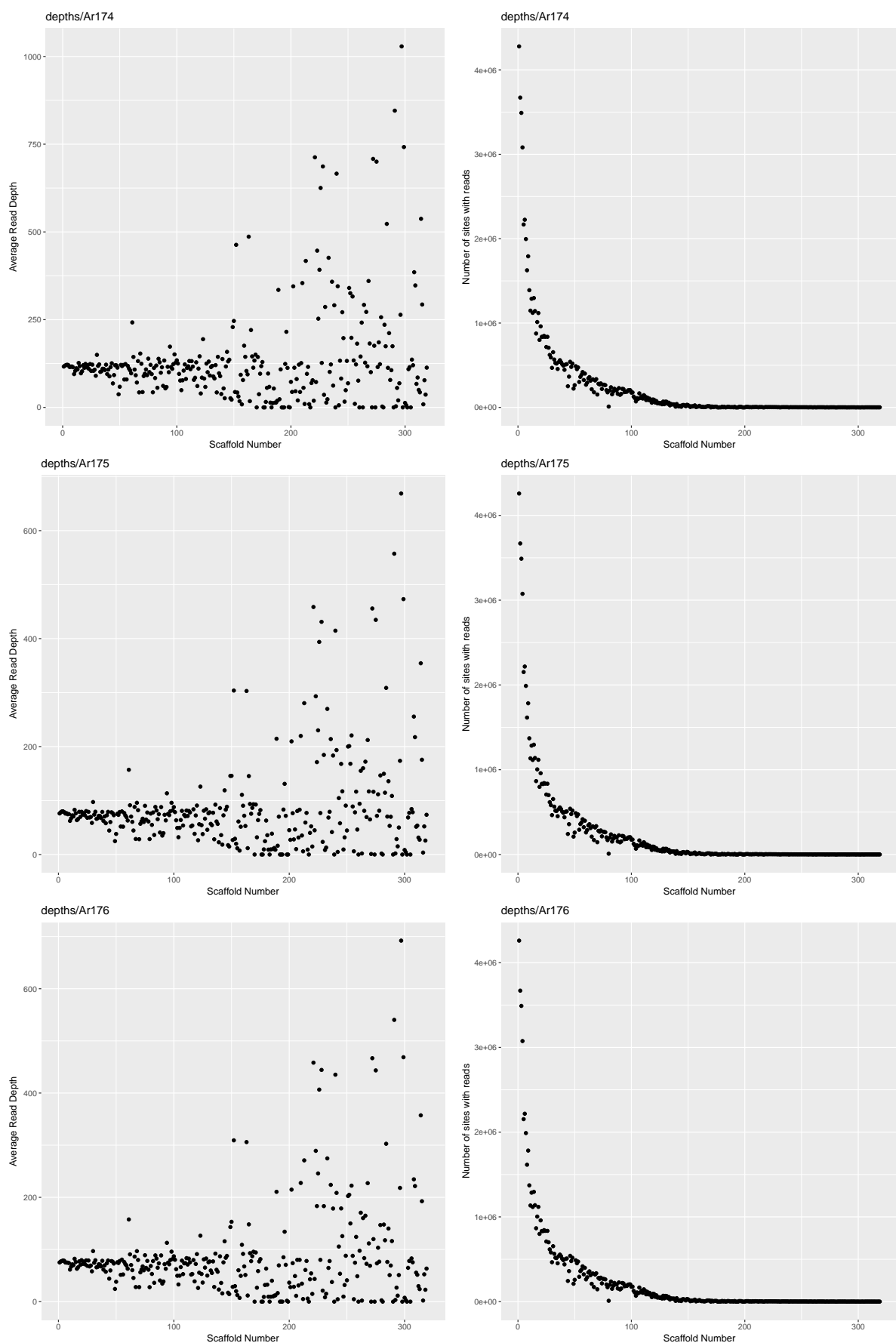
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Figure 3. Average Read Depth Per scaffold, Ar:174, 175, 176. Graphs on the left are the average read depth vs scaffold number and graphs on the right are the total number of sites with reads aligned to them per scaffold.

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Figure 4. Average Read Depth Per scaffold, Ar:179, 188, 194. Graphs on the left are the average read depth vs scaffold number and graphs on the right are the total number of sites with reads aligned to them per scaffold.
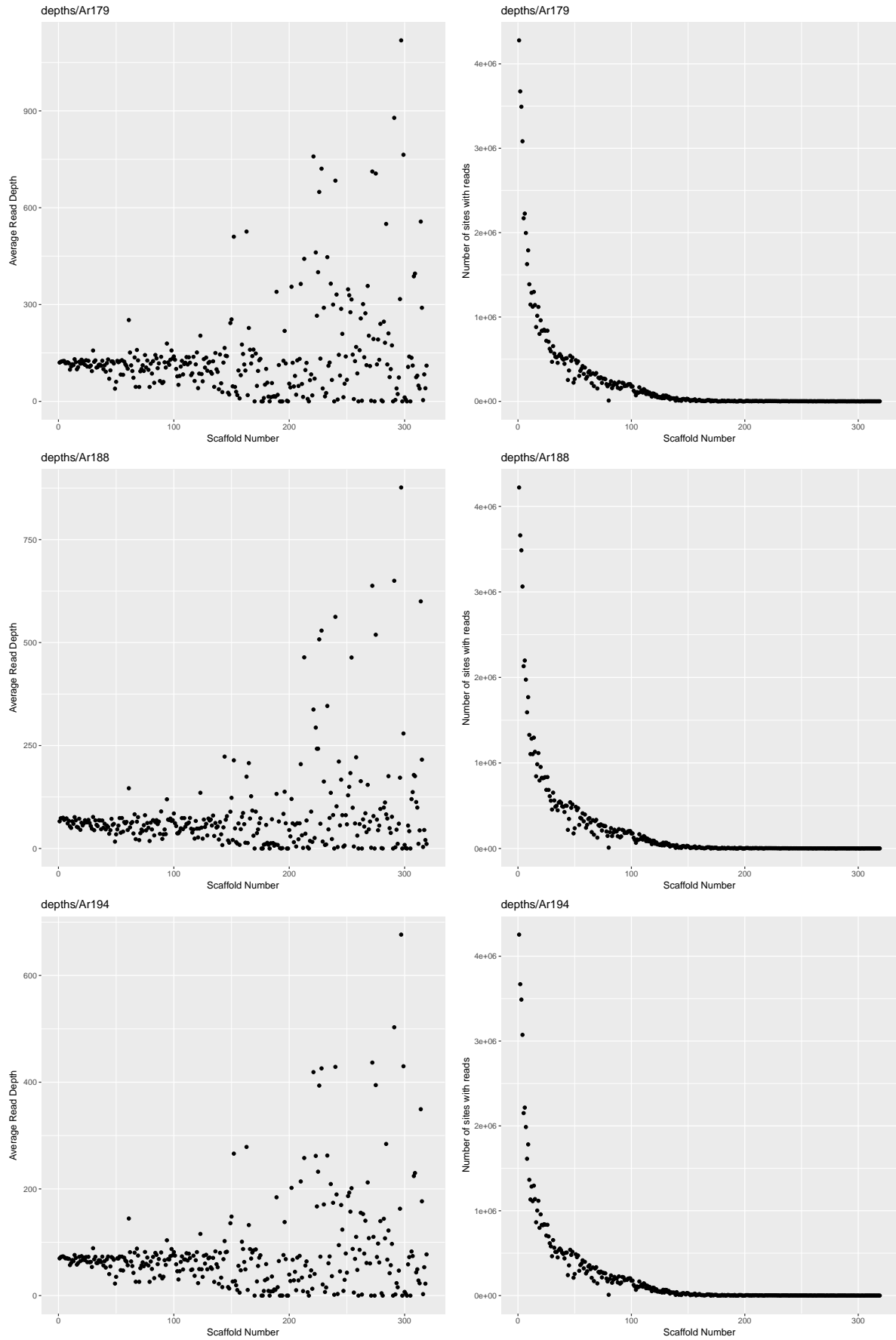
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Figure 5. Average Read Depth Per scaffold, Ar:196, 201, 213. Graphs on the left are the average read depth vs scaffold number and graphs on the right are the total number of sites with reads aligned to them per scaffold.
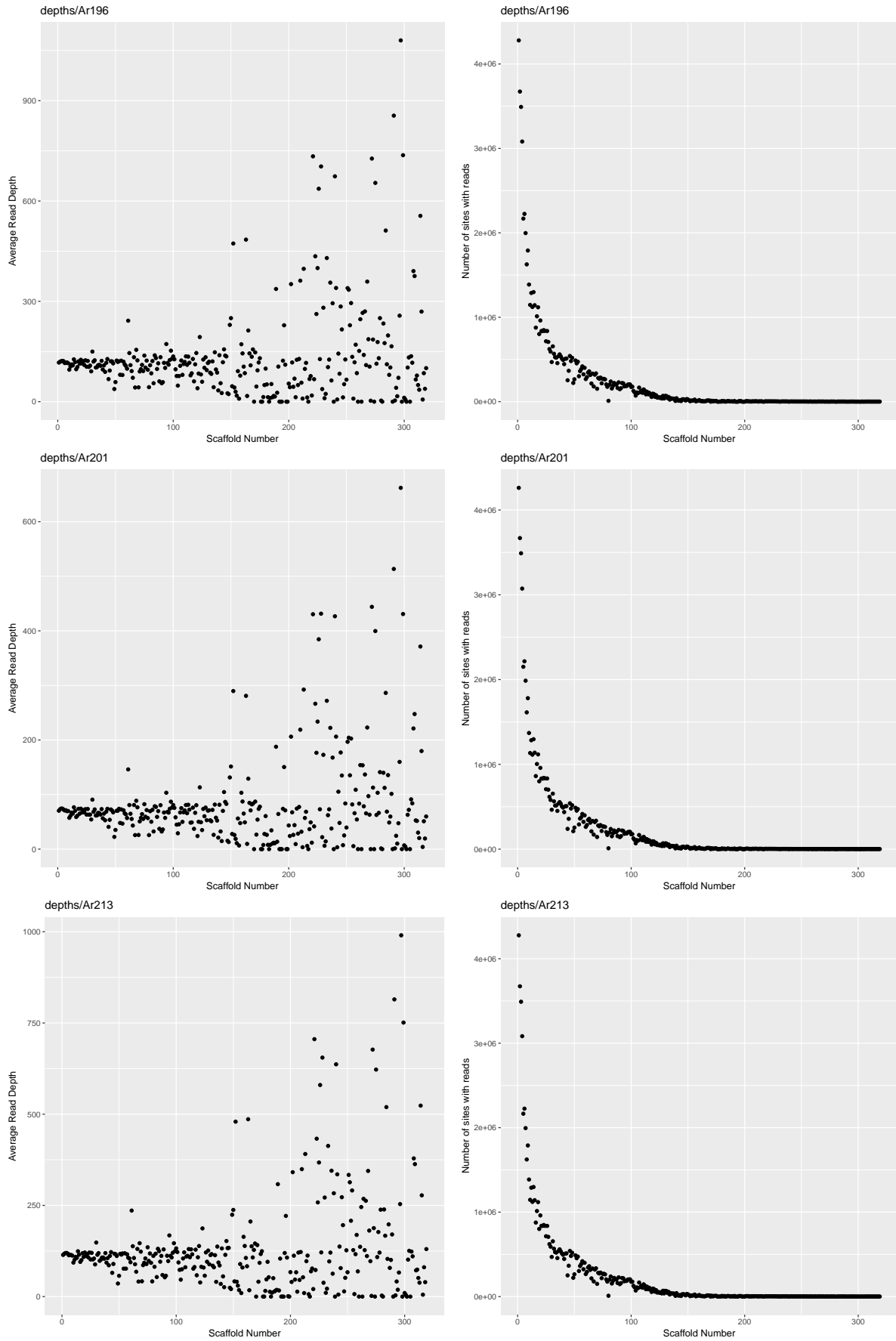
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Indel Analysis

Indels in *Armillaria gallica*

Through previous studies on the *Armillaria gallica* fungus, several strains were sequenced in Illuminia. These strains were analyzed using samtools and an additional package called bcftools.

Through the use of bcftools, labels were added to the output which indicated various other information about the indel found such as: maximum number of reads supporting an indel, raw read depth, the number of reads that support the indel and other information.

As seen in 2, many indels are found throughout most if not all of the strains analyzed. The summary table only shows the first three indels found within the each strain, however throughout the data, this is a repeated pattern. Indels are shown to be shared amongst the strains.

Table 2. A summary table of the first three indels found in each of the strains which includes the scaffold number, the location at which the indel is found, the number of reads that support that indel, and the raw read depth

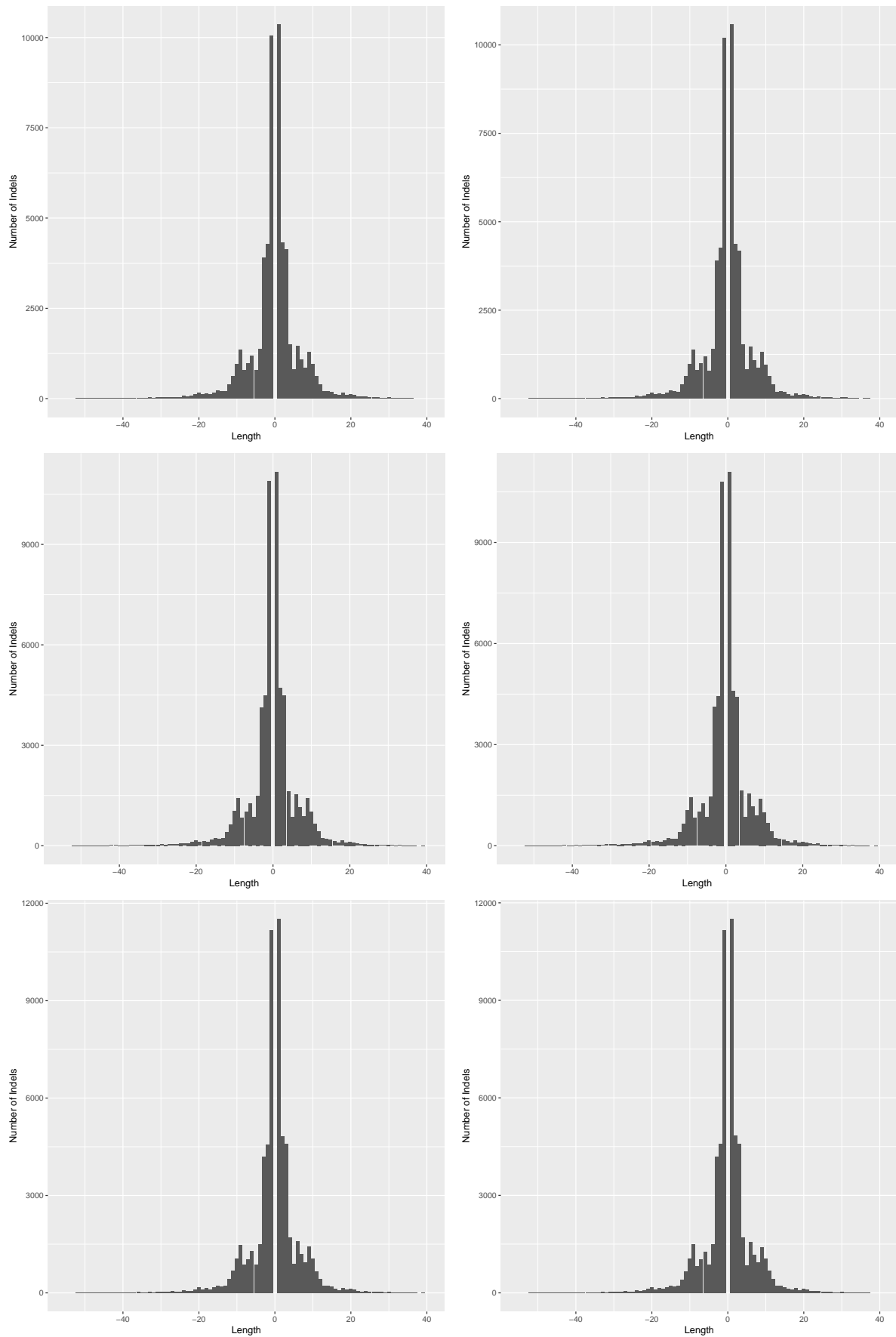| Strain No.	Scaffold No.	Location	No. of Reads Supporting	Raw Read Depth
	1	7762	54	156
Ar73	1	10784	34	148
	1	12340	37	123
	1	7762	56	163
Ar109	1	10784	68	175
	1	16154	7	176
	1	7762	62	163
Ar119	1	10784	57	140
	1	16154	4	167
	1	7762	63	189
Ar142	1	10784	55	186
	1	16154	5	125
	1	7762	41	116
Ar159	1	10784	28	100
	1	16154	3	85
	1	7762	73	222
Ar170	1	10784	61	194
	1	12340	72	193
	1	7762	63	201
Ar174	1	9593	72	218
	1	10784	45	184
	1	7762	47	141
Ar175	1	10784	28	108
	1	12340	35	102
	1	7762	39	141
Ar176	1	9593	43	129
	1	10784	33	115
	1	7762	63	193
Ar179	1	9593	64	205
	1	10784	50	195
	1	7762	17	62
Ar188	1	10784	11	47
	1	12340	24	54
	1	7762	35	133
Ar194	1	10784	32	105
	1	12340	35	110
	1	7762	72	224
Ar196	1	10784	53	169
	1	12340	72	192
	1	7762	38	110
Ar201	1	10784	44	116
	1	12340	50	102
	1	7762	76	220
Ar213	1	9593	63	196
	1	10784	48	188

Figure 6. The Frequency of the Indel Length Per Strain, Ar: 109, 119, 142, 159, 170, and 174
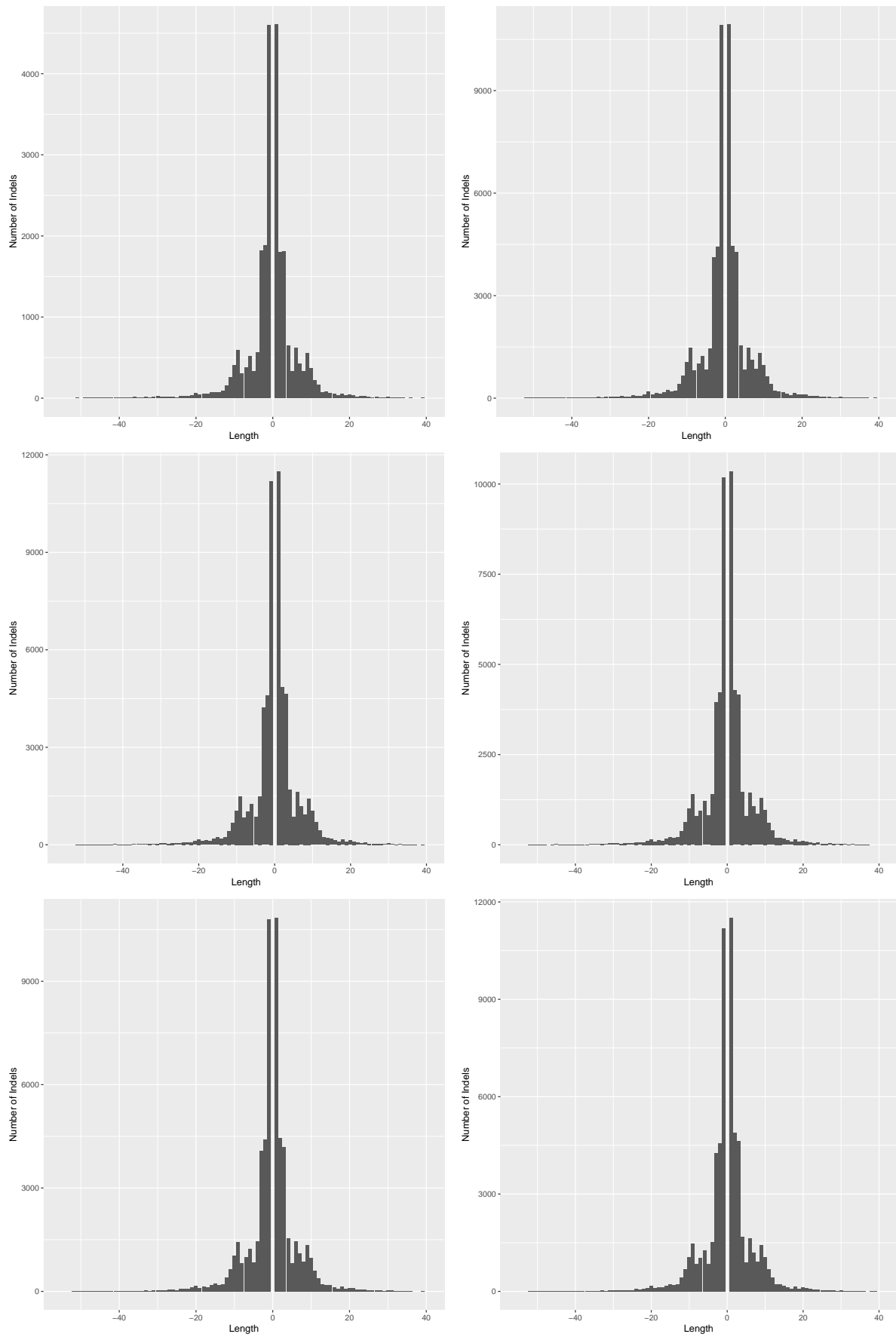
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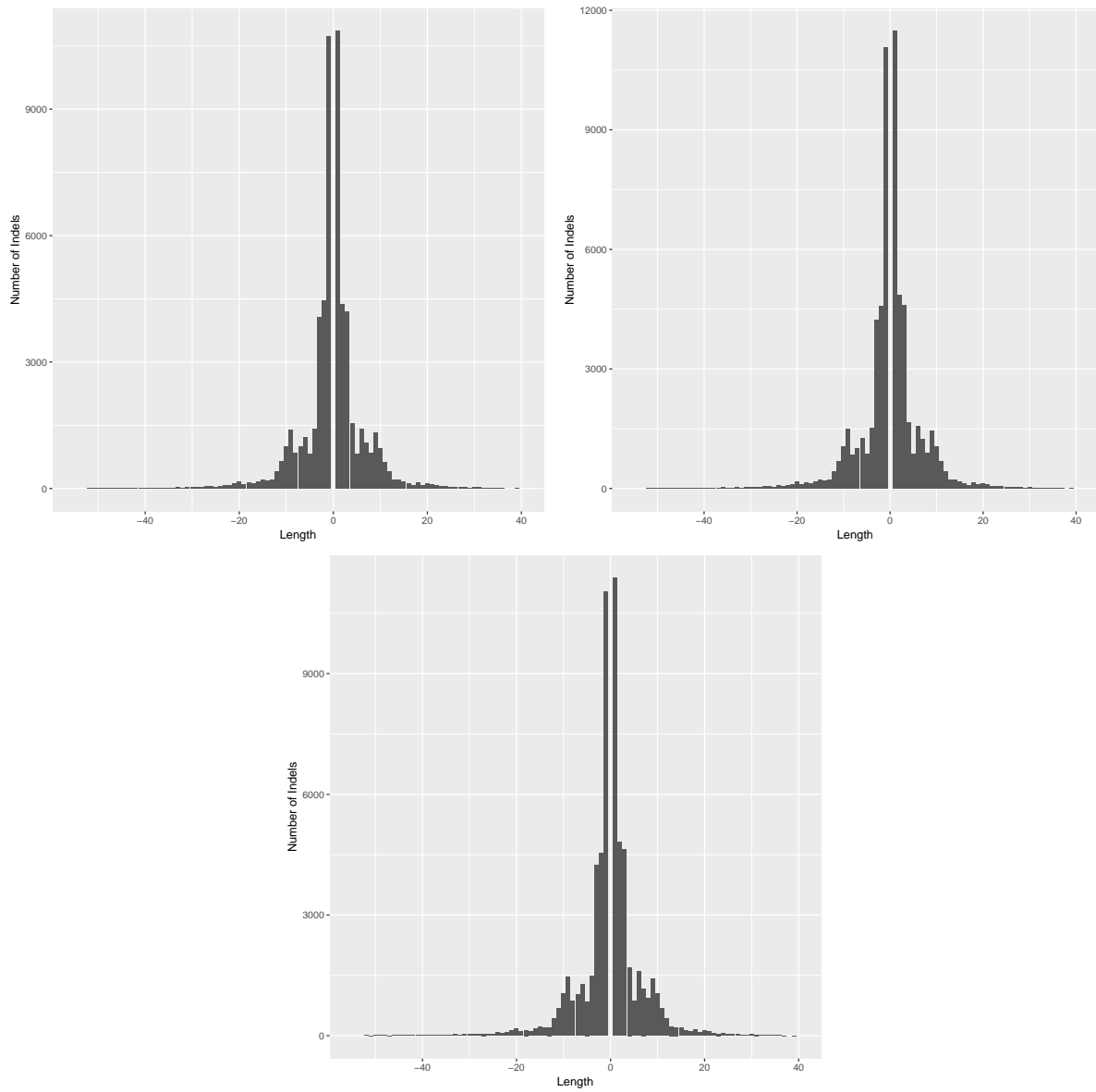**Figure 7.** The Frequency of the Indel Length Per Strain, Ar: 175, 176, 179, 188, 194, and 196

Figure 8. The Frequency of the Indel Length Per Strain, Ar: 201, 213, and73
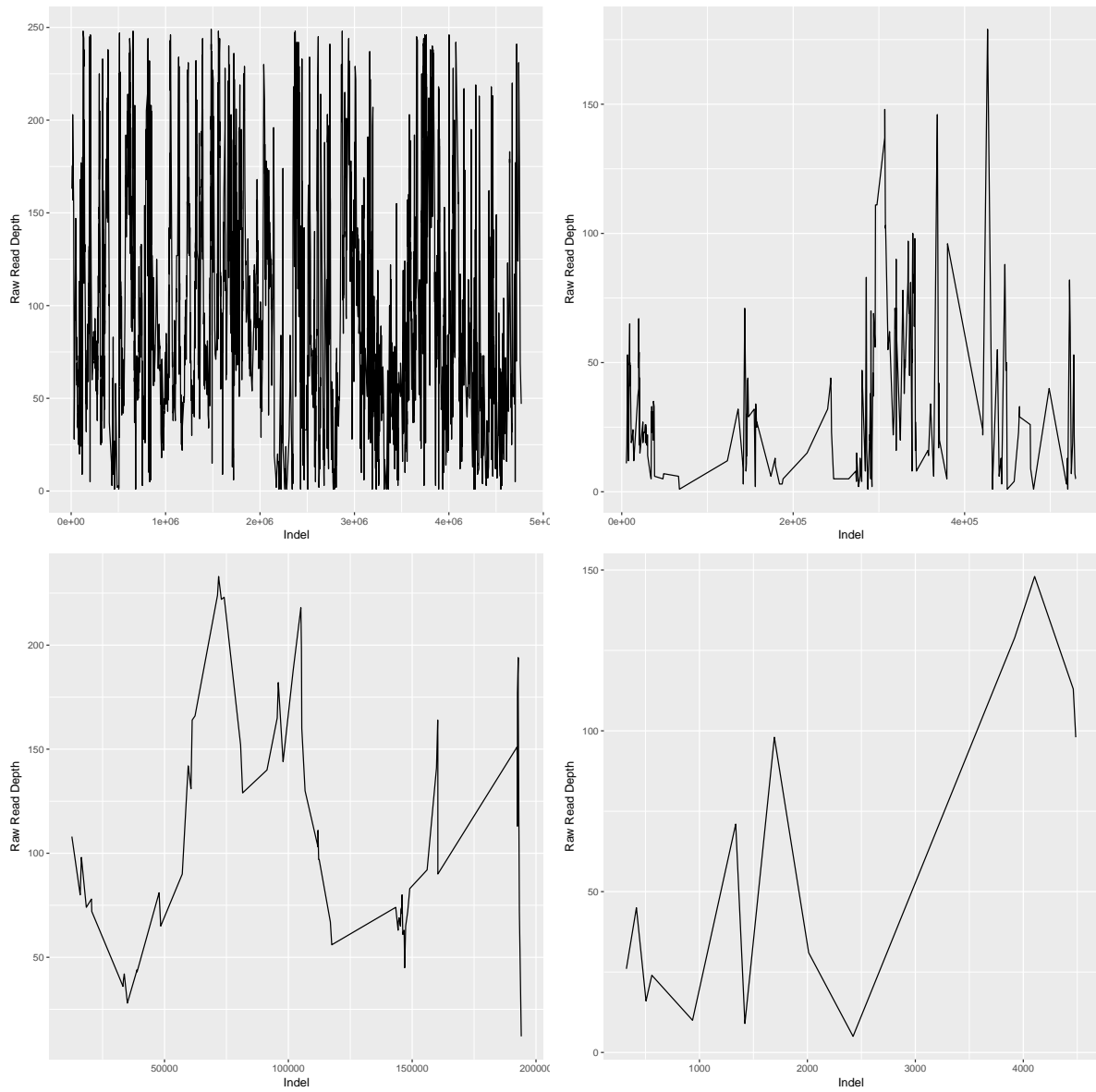
Figure 9. The Read Depth of Indels Found in Ar:109 at Scaffold:1, 50, 100, and 211. Every vertice indicates one indel