

## Appendix 1. Normality test of body weight rats early study

### Case Processing Summary

		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Body Weight First	NCG	6	100,0%	0	0,0%	6	100,0%
	PCG	6	100,0%	0	0,0%	6	100,0%
	MTG	8	100,0%	0	0,0%	8	100,0%

### Descriptives

Group			Statistic	Std. Error	
Body Weight First	NCG	Mean	219,00	10,437	
		95% Confidence Interval for Mean	Lower Bound 192,17 Upper Bound 245,83		
	5% Trimmed Mean	220,44			
	Median	226,50			
	Variance	653,600			
	Std. Deviation	25,566			
	Minimum	172			
	Maximum	240			
	Range	68			
	Interquartile Range	39			
	Skewness	-1,542	,845		
	Kurtosis	2,362	1,741		
	PCG	PCG	Mean	219,67	12,298
			95% Confidence Interval for Mean	Lower Bound 188,05 Upper Bound 251,28	
5% Trimmed Mean		217,63			
Median		208,50			
Variance		907,467			
Std. Deviation		30,124			
Minimum		198			
Maximum		278			
Range		80			
Interquartile Range		39			
Skewness		1,954	,845		
Kurtosis		3,934	1,741		
MTG		MTG	Mean	207,25	11,909
			95% Confidence Interval for Mean	Lower Bound 179,09 Upper Bound 235,41	
	5% Trimmed Mean	209,06			
	Median	207,00			
	Variance	1134,500			
	Std. Deviation	33,682			
	Minimum	136			
	Maximum	246			
	Range	110			
	Interquartile Range	36			
	Skewness	-1,369	,752		
	Kurtosis	2,777	1,481		

**Tests of Normality**

Group	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Body Weight First NCG	,229	6	,200*	,843	6	,137
PCG	,305	6	,085	,755	6	,022
MTG	,244	8	,176	,880	8	,189

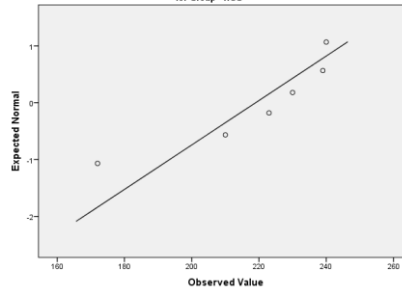
\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

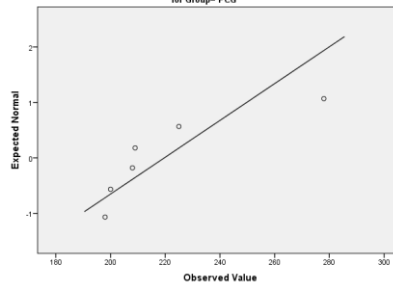
**Test of Homogeneity of Variance**

		Levene Statistic	df1	df2	Sig.
Body Weight First	Based on Mean	,063	2	17	,939
	Based on Median	,112	2	17	,894
	Based on Median and with adjusted df	,112	2	16,127	,894
	Based on trimmed mean	,075	2	17	,928

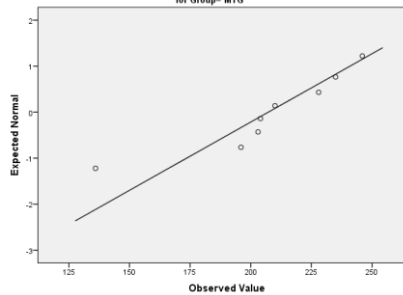
Normal Q-Q Plot of Body Weight First  
for Group= NCG



Normal Q-Q Plot of Body Weight First  
for Group= PCG



Normal Q-Q Plot of Body Weight First  
for Group= MTG



## Appendix 2. Normality test of body weight rats end study

**Case Processing Summary**

Group		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Body Last	NCG	6	100,0%	0	0,0%	6	100,0%
	PCG	6	100,0%	0	0,0%	6	100,0%
	MTG	8	100,0%	0	0,0%	8	100,0%

**Descriptives**

Group			Statistic	Std. Error	
Body Last	NCG	Mean	263,83	7,876	
		95% Confidence Interval for Mean	Lower Bound	243,59	
			Upper Bound	284,08	
		5% Trimmed Mean	263,70		
		Median	261,50		
		Variance	372,167		
		Std. Deviation	19,292		
		Minimum	240		
		Maximum	290		
		Range	50		
		Interquartile Range	35		
		Skewness	,206	,845	
		Kurtosis	-1,643	1,741	
		PCG	PCG	Mean	257,67
95% Confidence Interval for Mean	Lower Bound			237,97	
	Upper Bound			277,36	
5% Trimmed Mean	258,46				
Median	260,50				
Variance	352,267				
Std. Deviation	18,769				
Minimum	224				
Maximum	277				
Range	53				
Interquartile Range	28				
Skewness	-1,276			,845	
Kurtosis	2,030			1,741	
MTG	MTG			Mean	263,13
		95% Confidence Interval for Mean	Lower Bound	246,92	
			Upper Bound	279,33	
		5% Trimmed Mean	263,14		
		Median	262,00		
		Variance	375,554		
		Std. Deviation	19,379		
		Minimum	236		
		Maximum	290		
		Range	54		
		Interquartile Range	34		
		Skewness	,013	,752	
		Kurtosis	-1,574	1,481	

### Tests of Normality

Group	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Body Last	NCG	,213	6	,200 <sup>*</sup>	,951	6	,749
	PCG	,216	6	,200 <sup>*</sup>	,898	6	,365
	MTG	,183	8	,200 <sup>*</sup>	,943	8	,640

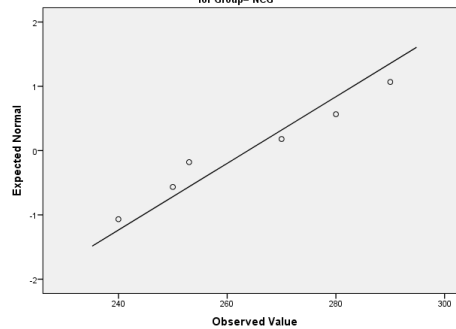
\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

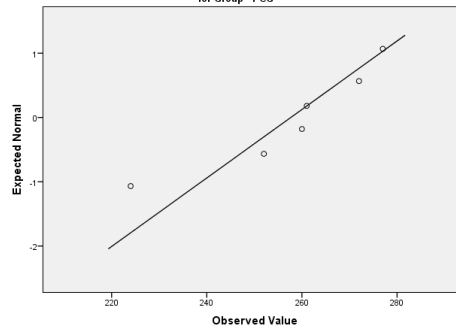
### Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Body Last	Based on Mean	,277	2	17	,761
	Based on Median	,367	2	17	,698
	Based on Median and with adjusted df	,367	2	13,078	,700
	Based on trimmed mean	,313	2	17	,736

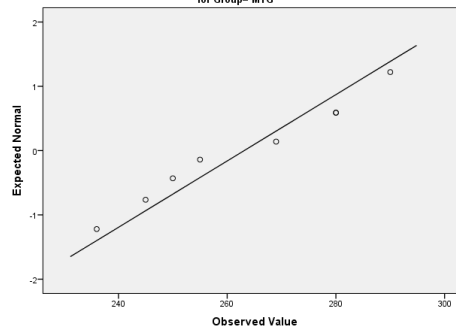
Normal Q-Q Plot of Body Last  
for Group= NCG



Normal Q-Q Plot of Body Last  
for Group= PCG



Normal Q-Q Plot of Body Last  
for Group= MTG



### Appendix 3. Comparison test of body weight rats early study

#### Descriptives

Body Weight First

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
NCG	6	219,00	25,566	10,437	192,17	245,83	172	240
PCG	6	219,67	30,124	12,298	188,05	251,28	198	278
MTG	8	207,25	33,682	11,909	179,09	235,41	136	246
Total	20	214,50	29,423	6,579	200,73	228,27	136	278

#### Test of Homogeneity of Variances

Body Weight First

Levene Statistic	df1	df2	Sig.
,063	2	17	,939

#### ANOVA

Body Weight First

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	702,167	2	351,083	,379	,690
Within Groups	15746,833	17	926,284		
Total	16449,000	19			

#### Multiple Comparisons

Dependent Variable: Body Weight First

	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	NCG	PCG	-,667	17,572	,999	-45,74	44,41
		MTG	11,750	16,437	,758	-30,42	53,92
	PCG	NCG	,667	17,572	,999	-44,41	45,74
		MTG	12,417	16,437	,735	-29,75	54,58
	MTG	NCG	-11,750	16,437	,758	-53,92	30,42
		PCG	-12,417	16,437	,735	-54,58	29,75
Bonferroni	NCG	PCG	-,667	17,572	1,000	-47,32	45,99
		MTG	11,750	16,437	1,000	-31,89	55,39
	PCG	NCG	,667	17,572	1,000	-45,99	47,32
		MTG	12,417	16,437	1,000	-31,22	56,06
	MTG	NCG	-11,750	16,437	1,000	-55,39	31,89
		PCG	-12,417	16,437	1,000	-56,06	31,22

#### Body Weight First

Group	N	Subset for alpha = 0.05
		1
Tukey HSD <sup>a,b</sup>	MTG	8
	NCG	6
	PCG	6
	Sig.	,745

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6,545.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

## Appendix 4. Comparison test of body weight rats end study

### Descriptives

Body Last

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
NCG	6	263,83	19,292	7,876	243,59	284,08	240	290
PCG	6	257,67	18,769	7,662	237,97	277,36	224	277
MTG	8	263,13	19,379	6,852	246,92	279,33	236	290
Total	20	261,70	18,342	4,101	253,12	270,28	224	290

### Test of Homogeneity of Variances

Body Last

Levene Statistic	df1	df2	Sig.
,277	2	17	,761

### ANOVA

Body Last

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	141,158	2	70,579	,192	,827
Within Groups	6251,042	17	367,708		
Total	6392,200	19			

### Multiple Comparisons

Dependent Variable: Body Last

	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	NCG	PCG	6,167	11,071	,844	-22,23	34,57
		MTG	,708	10,356	,997	-25,86	27,28
	PCG	NCG	-6,167	11,071	,844	-34,57	22,23
		MTG	-5,458	10,356	,859	-32,03	21,11
	MTG	NCG	-,708	10,356	,997	-27,28	25,86
		PCG	5,458	10,356	,859	-21,11	32,03
Bonferroni	NCG	PCG	6,167	11,071	1,000	-23,23	35,56
		MTG	,708	10,356	1,000	-26,79	28,20
	PCG	NCG	-6,167	11,071	1,000	-35,56	23,23
		MTG	-5,458	10,356	1,000	-32,95	22,04
	MTG	NCG	-,708	10,356	1,000	-28,20	26,79
		PCG	5,458	10,356	1,000	-22,04	32,95

### Body Last

Group	N	Subset for alpha = 0.05
		1
Tukey HSD <sup>a,b</sup>		
PCG	6	257,67
MTG	8	263,13
NCG	6	263,83
Sig.		,832

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6,545.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

## Appendix 5. Comparison test of HE reading

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
Atherosclerotic	Negative control group	6	3,50	21,00
	Positive control group	6	9,50	57,00
	Total	12		

**Test Statistics<sup>a</sup>**

	Atherosclerotic
Mann-Whitney U	,000
Wilcoxon W	21,000
Z	-3,127
Asymp. Sig. (2-tailed)	,002
Exact Sig. [2*(1-tailed Sig.)]	,002 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
Atherosclerotic	Negative control group	6	7,00	42,00
	MSCs treatment group	8	7,88	63,00
	Total	14		

**Test Statistics<sup>a</sup>**

	Atherosclerotic
Mann-Whitney U	21,000
Wilcoxon W	42,000
Z	-,866
Asymp. Sig. (2-tailed)	,386
Exact Sig. [2*(1-tailed Sig.)]	,755 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
Atherosclerotic	Positive control group	6	10,75	64,50
	MSCs treatment group	8	5,06	40,50
	Total	14		

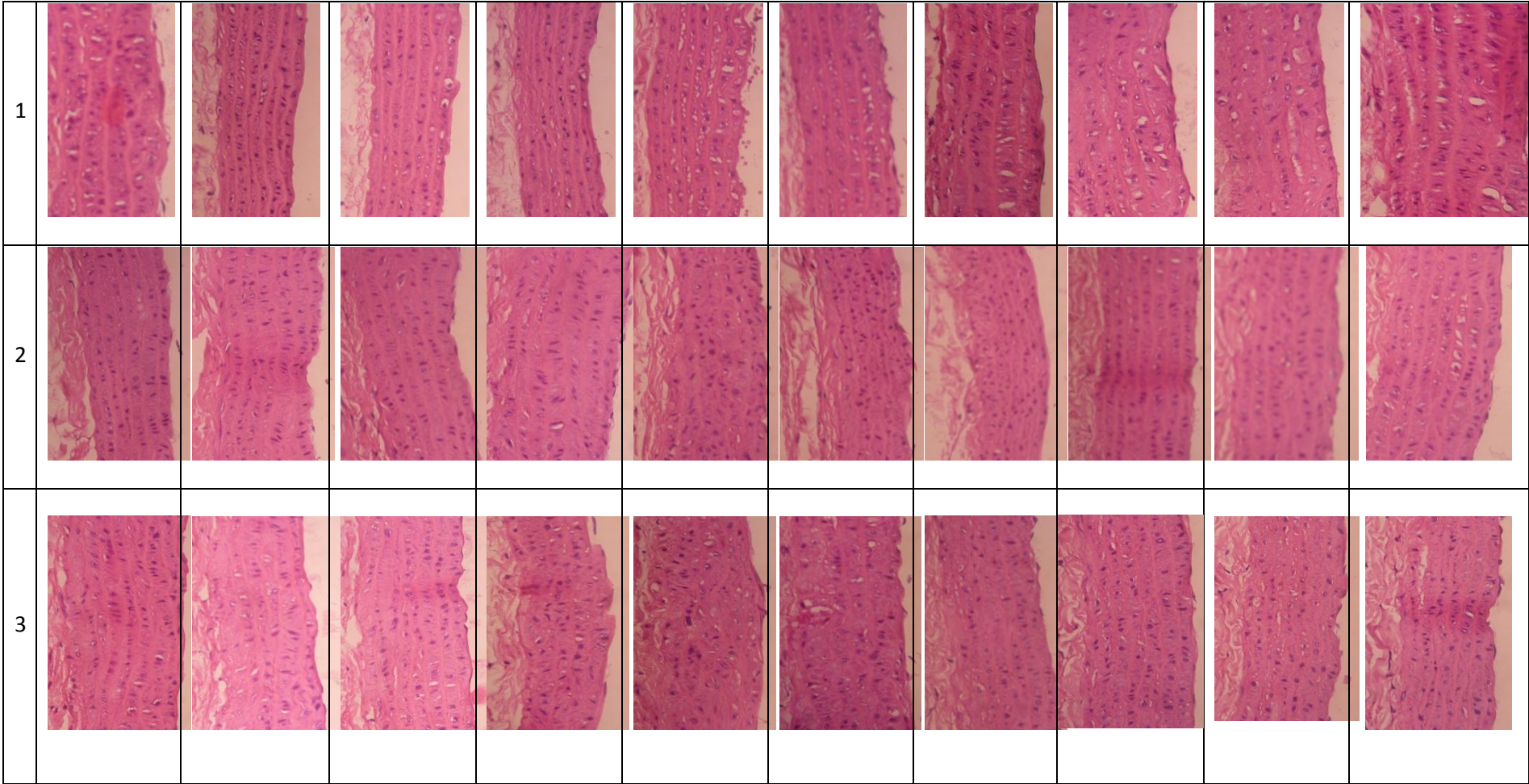
**Test Statistics<sup>a</sup>**

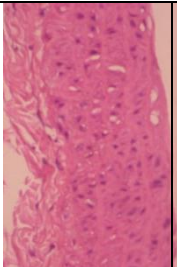
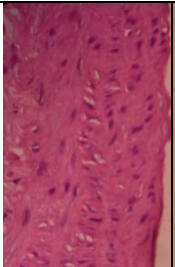
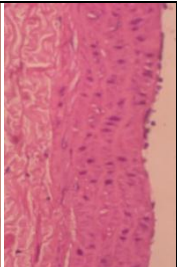
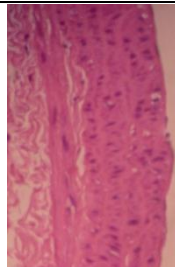
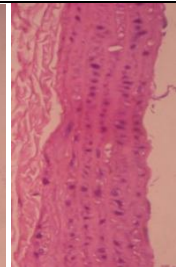
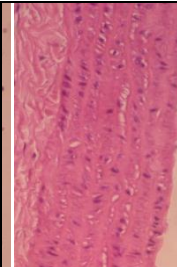
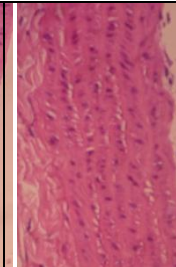
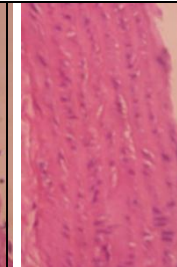

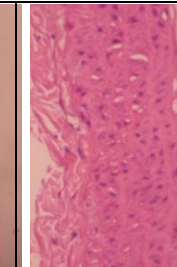
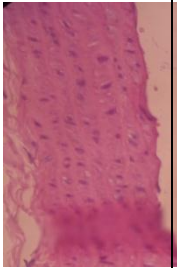
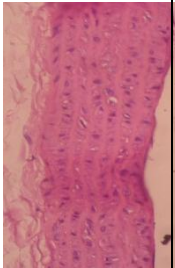
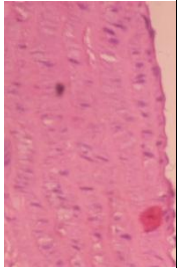
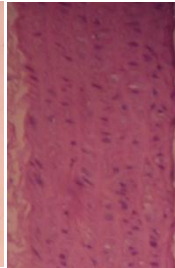
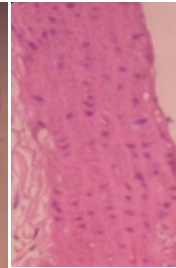
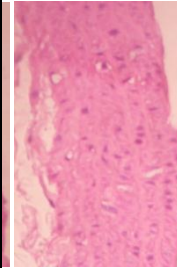
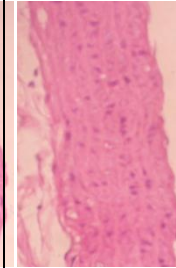
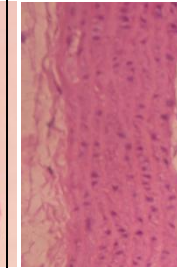
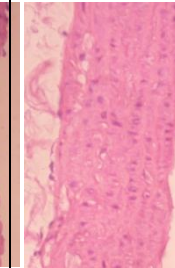
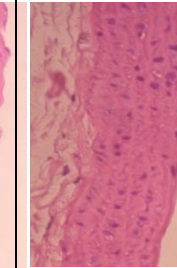
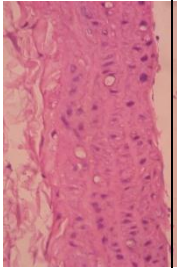
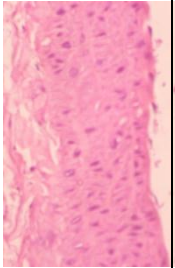
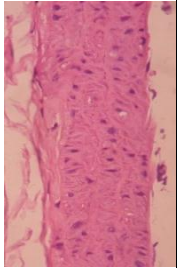
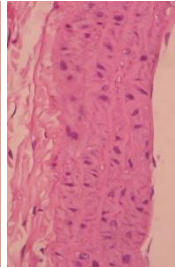
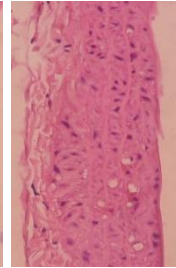
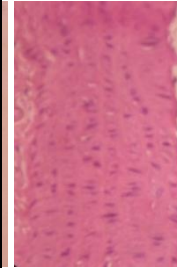
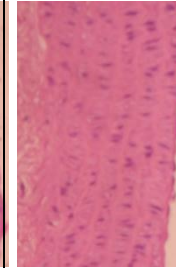
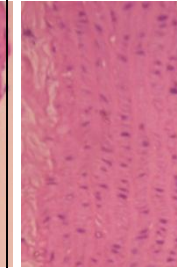
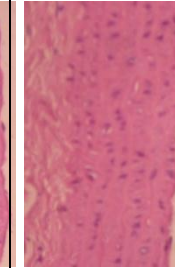
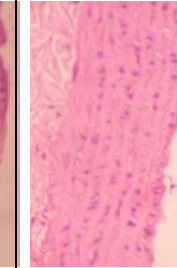
	Atherosclerotic
Mann-Whitney U	4,500
Wilcoxon W	40,500
Z	-2,737
Asymp. Sig. (2-tailed)	,006
Exact Sig. [2*(1-tailed Sig.)]	,008 <sup>b</sup>

a. Grouping Variable: Groups

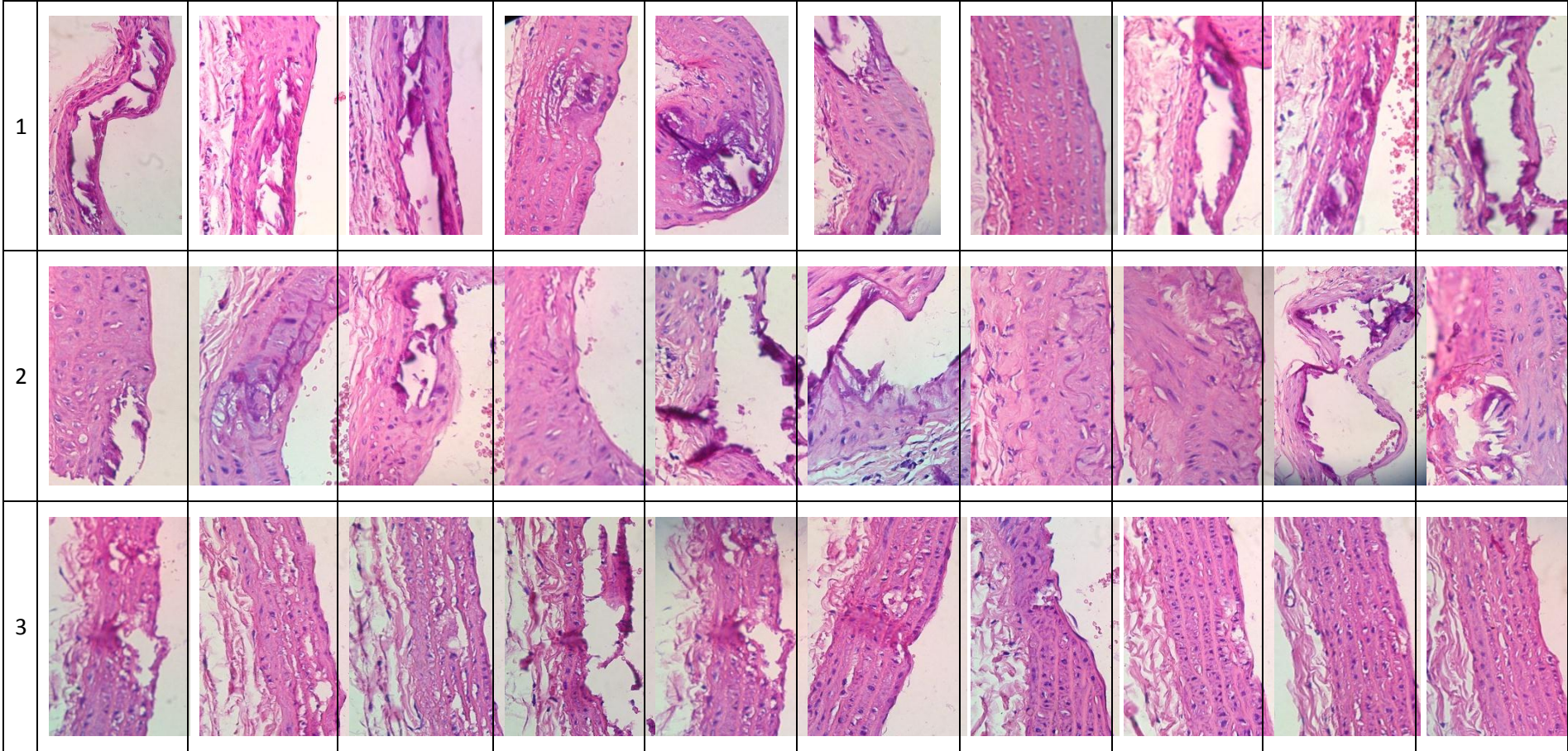
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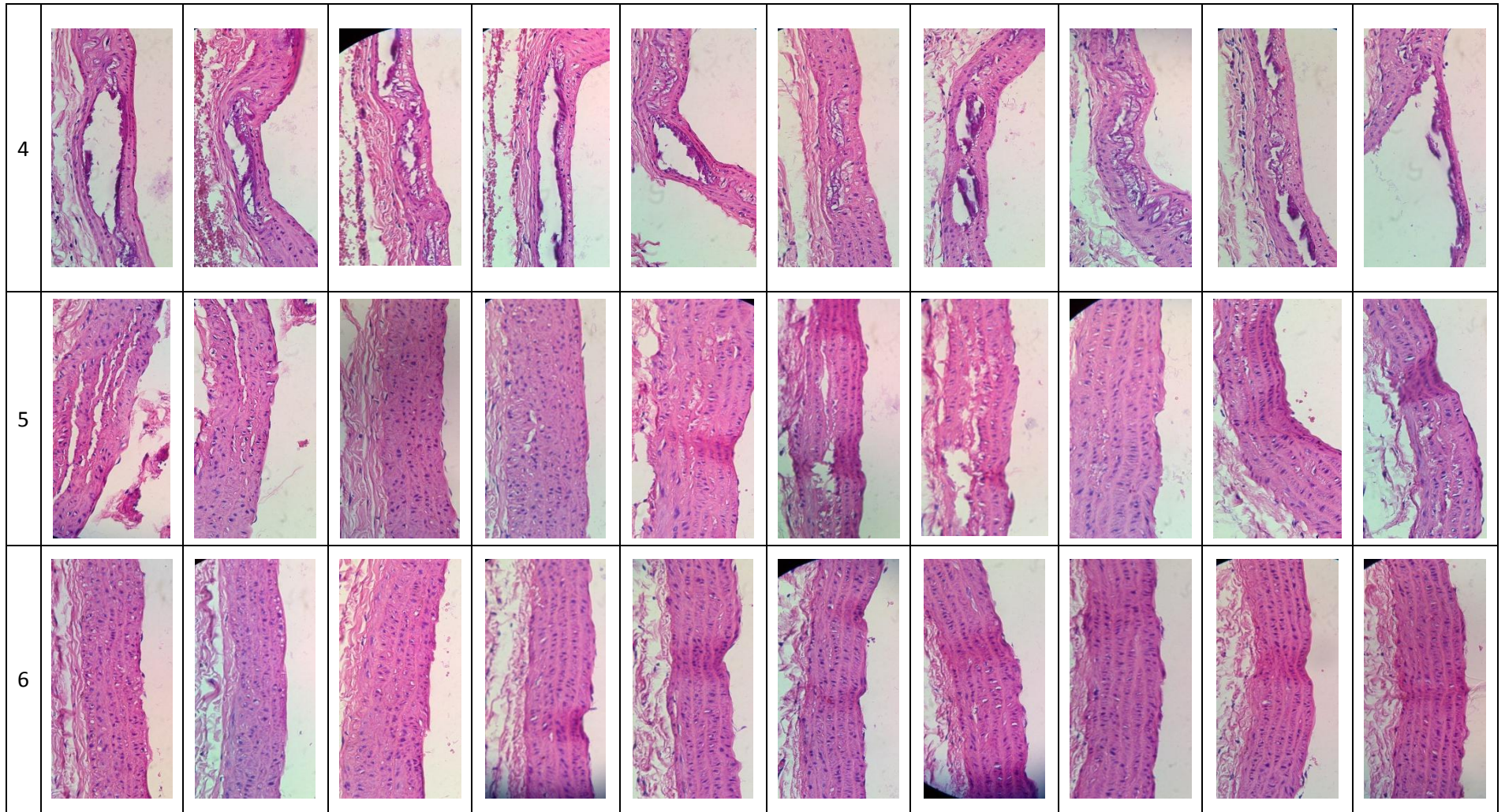
**Appendix 6.** Hematoxilin and eosin staining of negative control group



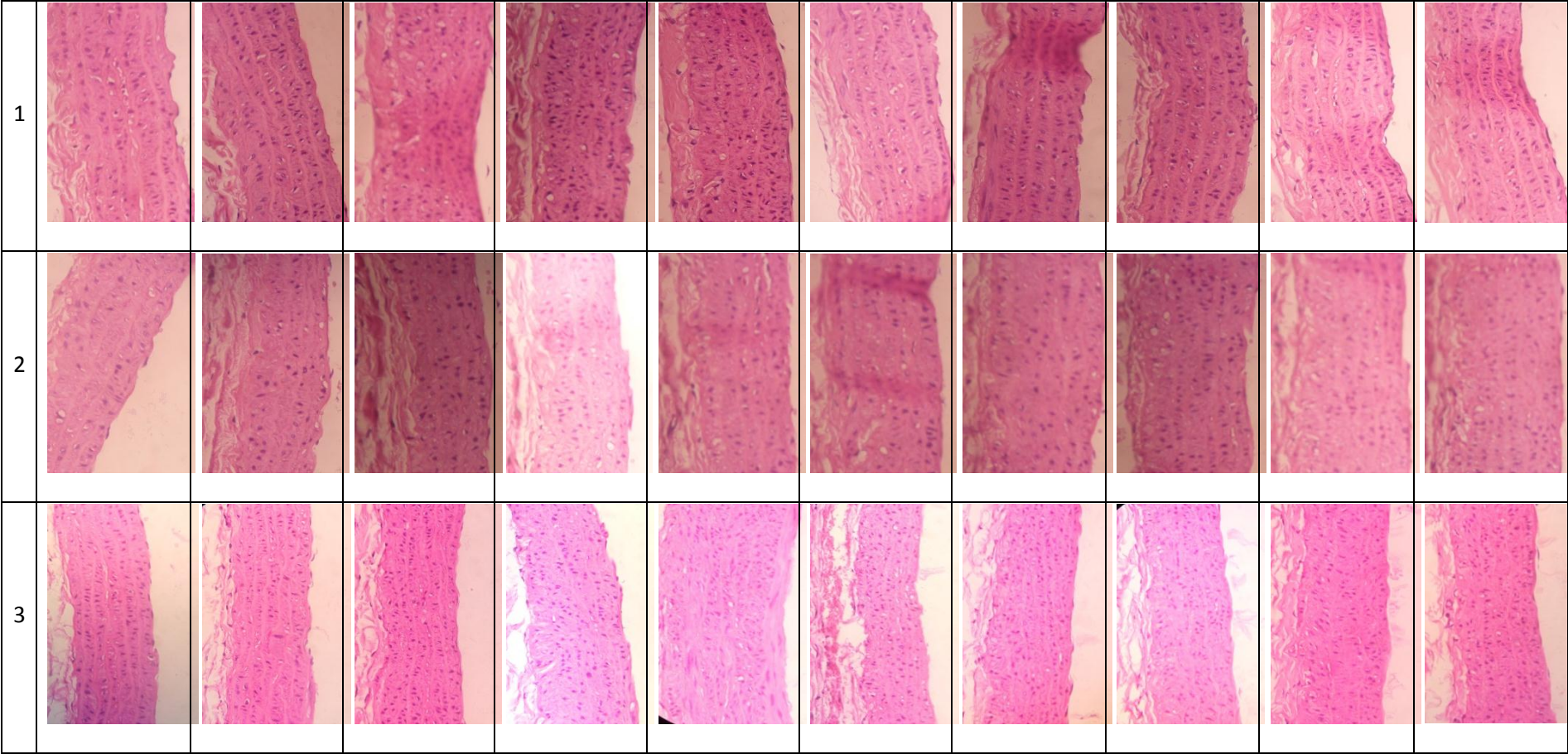
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5										
6										

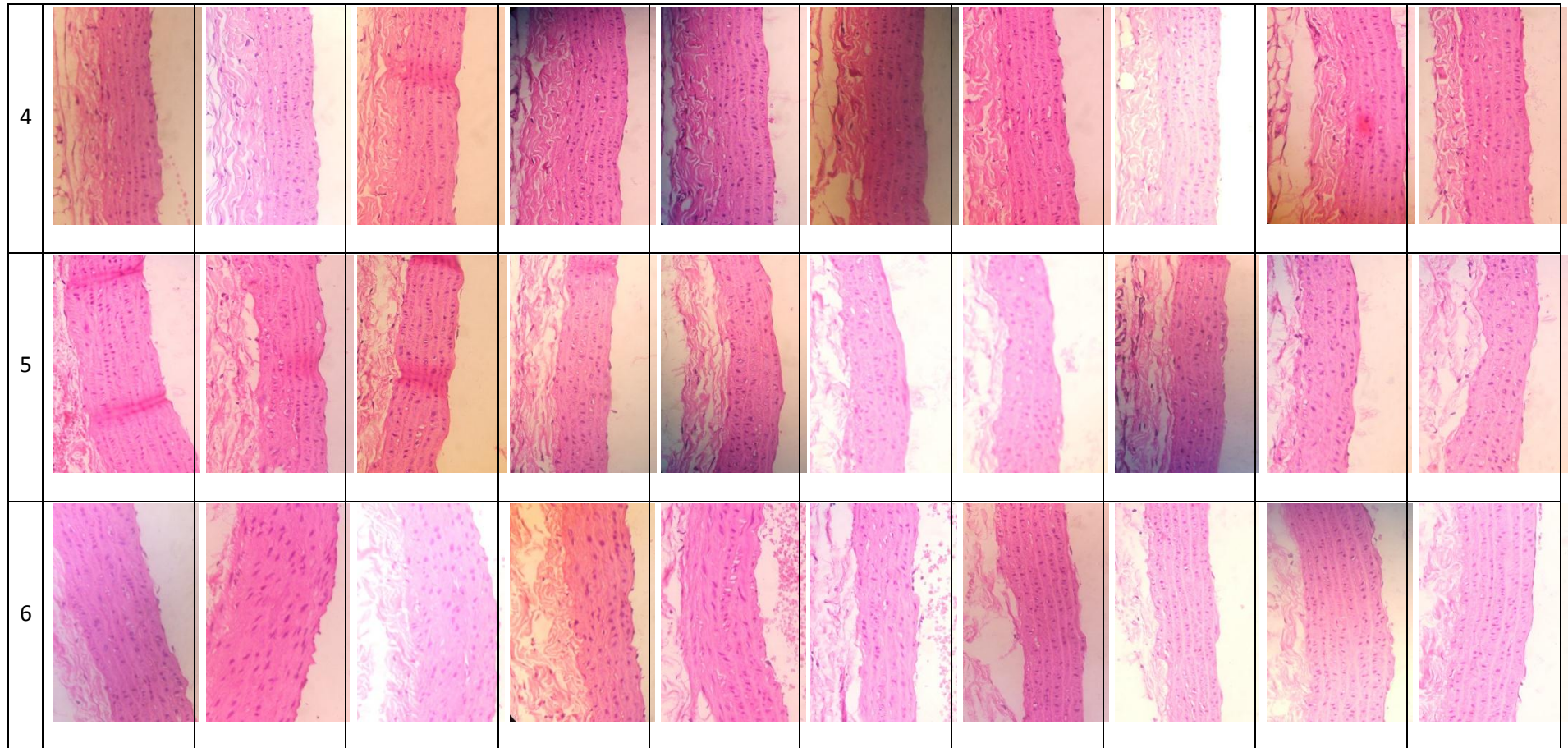
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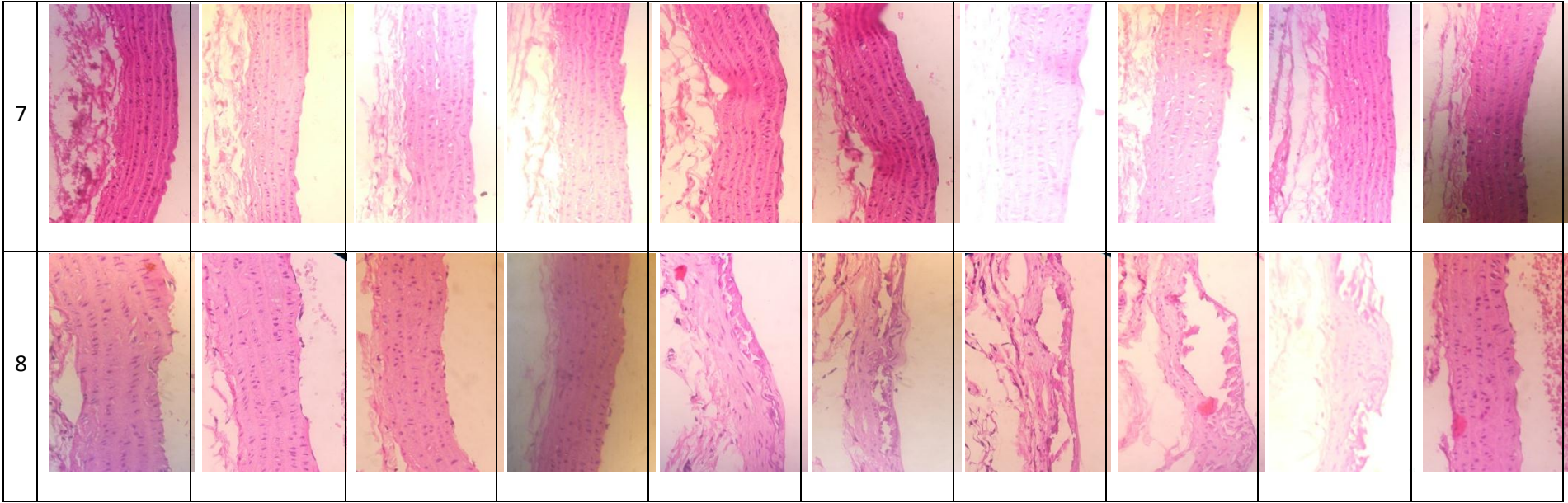




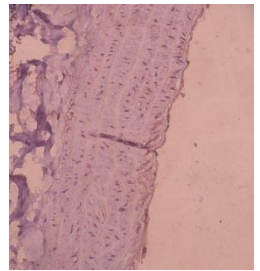
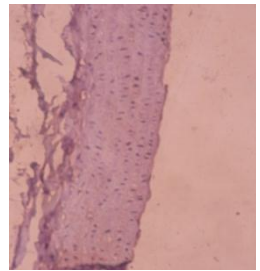
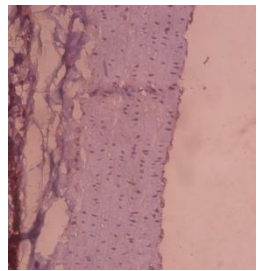
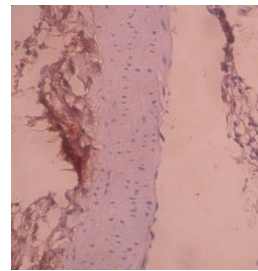
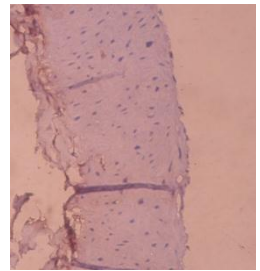
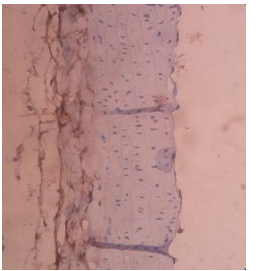
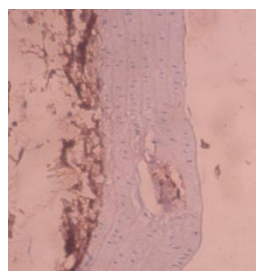
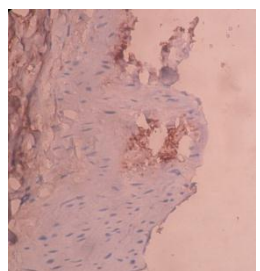
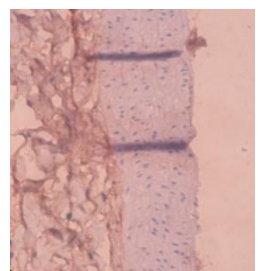
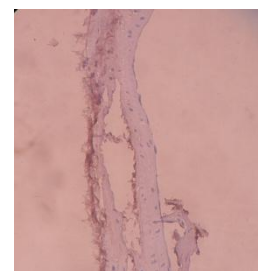
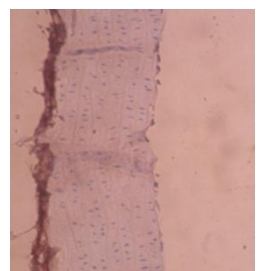
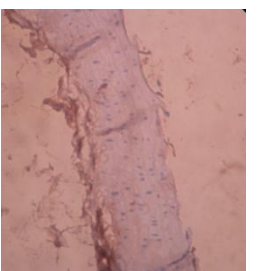
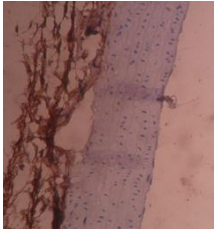
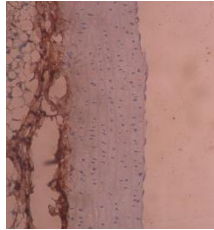
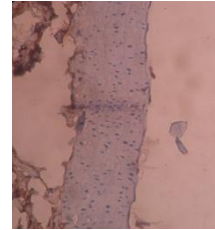
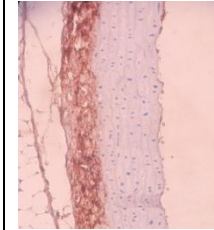
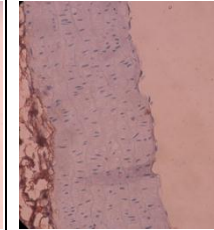
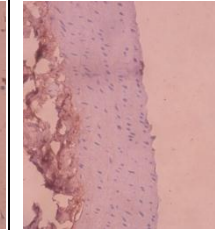
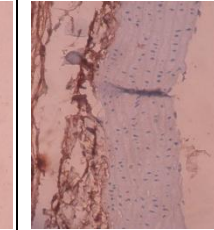
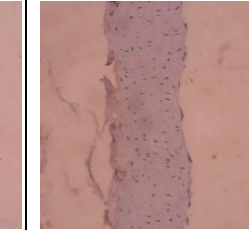
**Appendix 8. Hematoxylin and eosin staining of MSC treatment group**



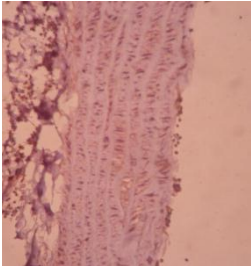
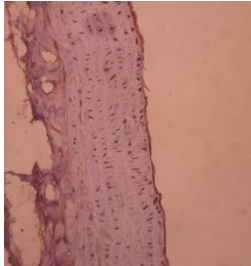
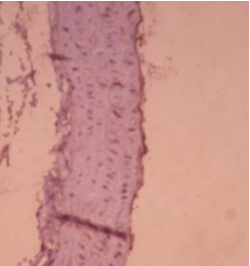
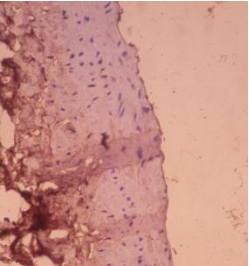
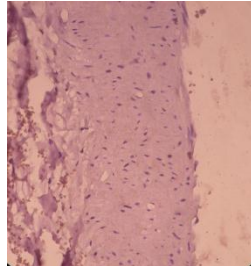
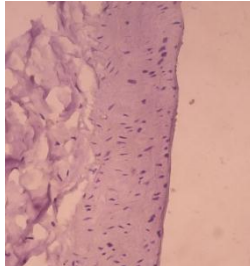
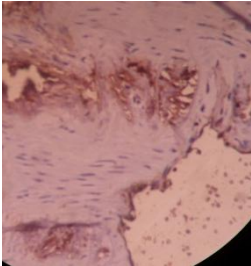
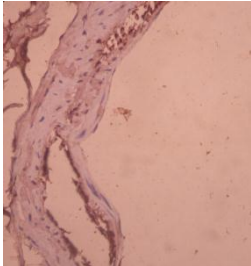
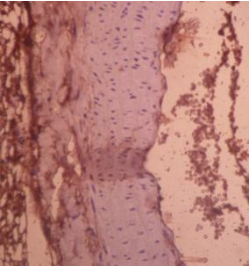
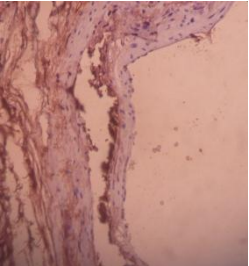
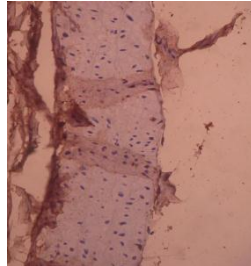
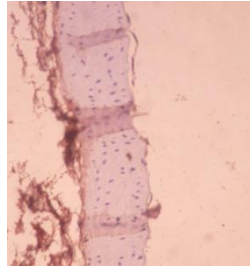
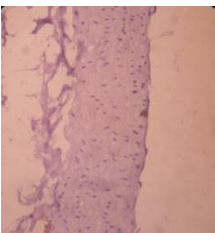
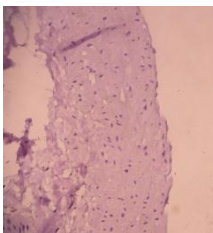
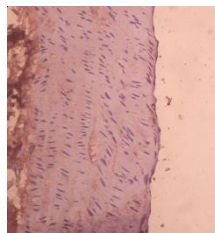
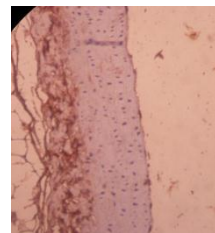
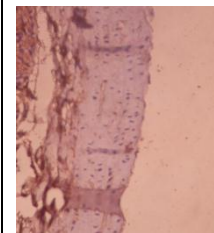
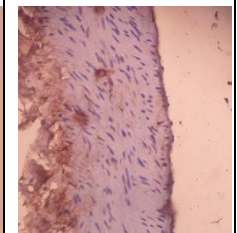
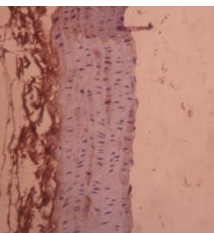
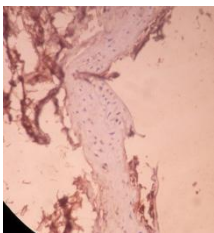




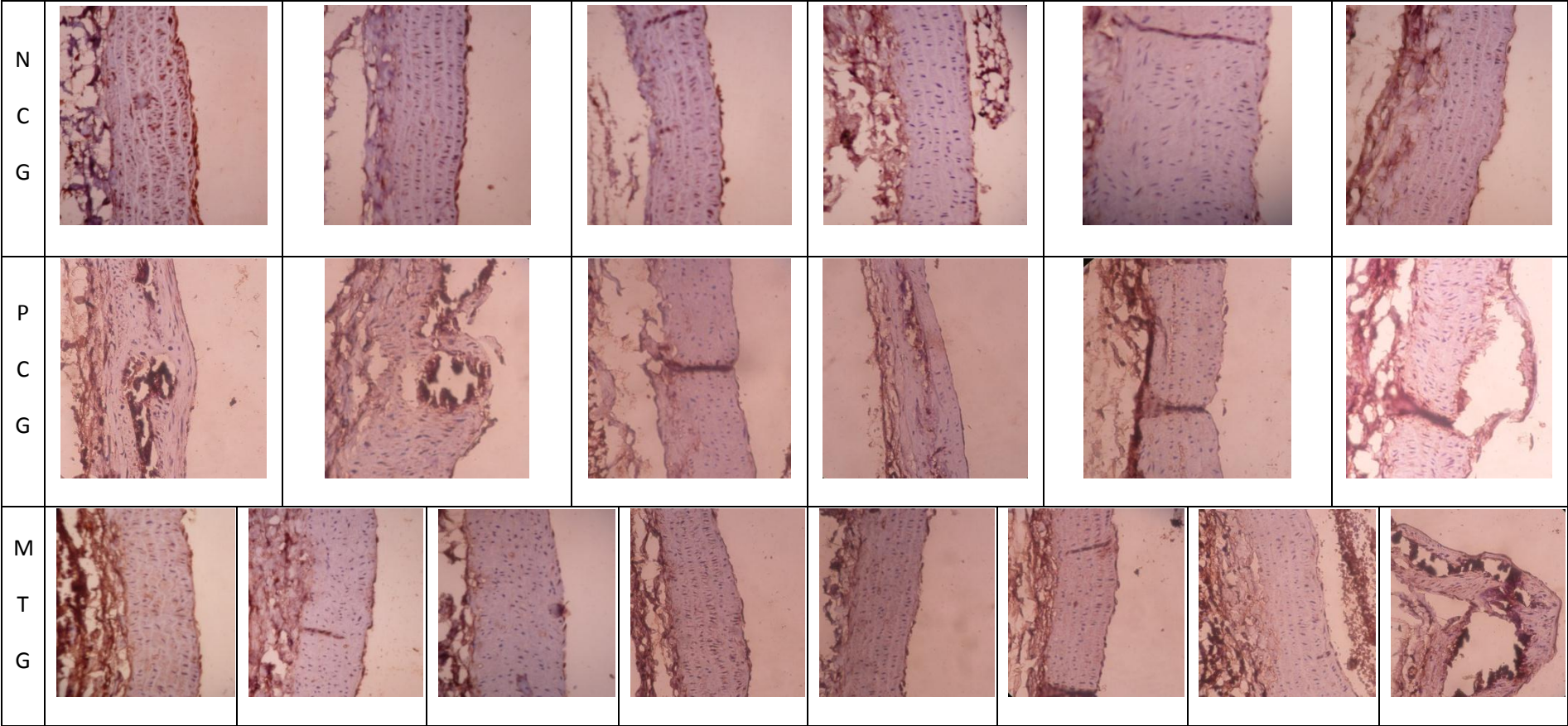
**Appendix 9. IL-1 $\alpha$  immunocytochemistry staining**

<p>N C G</p>								
<p>P C G</p>								
<p>M T G</p>								

**Appendix 10. IL-6 immunocytochemistry staining**

<p>N C G</p>								
<p>P C G</p>								
<p>M T G</p>								

Appendix 11. TGF-β1 immunocytochemistry staining



## Appendix 12. Comparison test of IL-1 $\alpha$ expression

**Ranks**

Groups	N	Mean Rank
IL 1 alpha endothel Negative control group	6	13,92
Positive control group	6	8,83
MSCs treatment group	8	9,19
Total	20	

**Test Statistics<sup>a,b</sup>**

	IL 1 alpha endothel
Chi-Square	3,394
df	2
Asymp. Sig.	,183

a. Kruskal Wallis Test

b. Grouping Variable:  
Groups

**Ranks**

Groups	N	Mean Rank	Sum of Ranks
IL 1 alpha endothel Negative control group	6	7,83	47,00
Positive control group	6	5,17	31,00
Total	12		

**Test Statistics<sup>a</sup>**

	IL 1 alpha endothel
Mann-Whitney U	10,000
Wilcoxon W	31,000
Z	-1,357
Asymp. Sig. (2-tailed)	,175
Exact Sig. [2*(1-tailed Sig.)]	,240 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups	N	Mean Rank	Sum of Ranks
IL 1 alpha endothel Negative control group	6	9,58	57,50
MSCs treatment group	8	5,94	47,50
Total	14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha endothel
Mann-Whitney U	11,500
Wilcoxon W	47,500
Z	-1,804
Asymp. Sig. (2-tailed)	,071
Exact Sig. [2*(1-tailed Sig.)]	,108 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha endothel	Positive control group	6	7,17	43,00
	MSCs treatment group	8	7,75	62,00
Total		14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha endothel
Mann-Whitney U	22,000
Wilcoxon W	43,000
Z	-,290
Asymp. Sig. (2-tailed)	,772
Exact Sig. [2*(1-tailed Sig.)]	,852 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank
IL 1 alpha smooth muscle	Negative control group	6	12,83
	Positive control group	6	9,50
	MSCs treatment group	8	9,50
Total		20	

**Test Statistics<sup>a,b</sup>**

	IL 1 alpha smooth muscle
Chi-Square	4,912
df	2
Asymp. Sig.	,086

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha smooth muscle	Negative control group	6	7,50	45,00
	Positive control group	6	5,50	33,00
Total		12		

**Test Statistics<sup>a</sup>**

	IL 1 alpha smooth muscle
Mann-Whitney U	12,000
Wilcoxon W	33,000
Z	-1,477
Asymp. Sig. (2-tailed)	,140
Exact Sig. [2*(1-tailed Sig.)]	,394 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha smooth muscle	Negative control group	6	8,83	53,00
	MSCs treatment group	8	6,50	52,00
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha smooth muscle
Mann-Whitney U	16,000
Wilcoxon W	52,000
Z	-1,695
Asymp. Sig. (2-tailed)	,090
Exact Sig. [2*(1-tailed Sig.)]	,345 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha smooth muscle	Positive control group	6	7,50	45,00
	MSCs treatment group	8	7,50	60,00
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha smooth muscle
Mann-Whitney U	24,000
Wilcoxon W	60,000
Z	,000
Asymp. Sig. (2-tailed)	1,000
Exact Sig. [2*(1-tailed Sig.)]	1,000 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank
IL 1 alpha macrophage	Negative control group	6	7,25
	Positive control group	6	10,67
	MSCs treatment group	8	12,81
	Total	20	

**Test Statistics<sup>a,b</sup>**

	IL 1 alpha macrophage
Chi-Square	3,191
df	2
Asymp. Sig.	,203

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha macrophage	Negative control group	6	5,42	32,50
	Positive control group	6	7,58	45,50
	Total	12		

**Test Statistics<sup>a</sup>**

	IL 1 alpha macrophage
Mann-Whitney U	11,500
Wilcoxon W	32,500
Z	-1,090
Asymp. Sig. (2-tailed)	,276
Exact Sig. [2*(1-tailed Sig.)]	,310 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha macrophage	Negative control group	6	5,33	32,00
	MSCs treatment group	8	9,13	73,00
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha macrophage
Mann-Whitney U	11,000
Wilcoxon W	32,000
Z	-1,711
Asymp. Sig. (2-tailed)	,087
Exact Sig. [2*(1-tailed Sig.)]	,108 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 1 alpha macrophage	Positive control group	6	6,58	39,50
	MSCs treatment group	8	8,19	65,50
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 1 alpha macrophage
Mann-Whitney U	18,500
Wilcoxon W	39,500
Z	-,726
Asymp. Sig. (2-tailed)	,468
Exact Sig. [2*(1-tailed Sig.)]	,491 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Appendix 13. Comparison test of IL-6 expression**

**Ranks**

Groups		N	Mean Rank
IL 6 endothel	Negative control group	6	12,42
	Positive control group	6	9,75
	MSCs treatment group	8	9,63
	Total	20	

**Test Statistics<sup>a,b</sup>**

	IL 6 endothel
Chi-Square	1,048
df	2
Asymp. Sig.	,592

a. Kruskal Wallis Test

b. Grouping Variable:  
Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 6 endothel	Negative control group	6	7,33	44,00
	Positive control group	6	5,67	34,00
	Total	12		

**Test Statistics<sup>a</sup>**

	IL 6 endothel
Mann-Whitney U	13,000
Wilcoxon W	34,000
Z	-,874
Asymp. Sig. (2-tailed)	,382
Exact Sig. [2*(1-tailed Sig.)]	,485 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 6 endothel	Negative control group	6	8,58	51,50
	MSCs treatment group	8	6,69	53,50
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 6 endothel
Mann-Whitney U	17,500
Wilcoxon W	53,500
Z	-,912
Asymp. Sig. (2-tailed)	,362
Exact Sig. [2*(1-tailed Sig.)]	,414 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 6 endothel	Positive control group	6	7,58	45,50
	MSCs treatment group	8	7,44	59,50
Total		14		

**Test Statistics<sup>a</sup>**

	IL 6 endothel
Mann-Whitney U	23,500
Wilcoxon W	59,500
Z	-,069
Asymp. Sig. (2-tailed)	,945
Exact Sig. [2*(1-tailed Sig.)]	,950 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank
IL 6 smooth muscle	Negative control group	6	10,25
	Positive control group	6	11,42
	MSCs treatment group	8	10,00
Total		20	

**Test Statistics<sup>a,b</sup>**

	IL 6 smooth muscle
Chi-Square	,233
df	2
Asymp. Sig.	,890

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
IL 6 smooth muscle	Negative control group	6	6,17	37,00
	Positive control group	6	6,83	41,00
Total		12		

**Test Statistics<sup>a</sup>**

	IL 6 smooth muscle
Mann-Whitney U	16,000
Wilcoxon W	37,000
Z	-,333
Asymp. Sig. (2-tailed)	,739
Exact Sig. [2*(1-tailed Sig.)]	,818 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

	Groups	N	Mean Rank	Sum of Ranks
IL 6 smooth muscle	Negative control group	6	7,58	45,50
	MSCs treatment group	8	7,44	59,50
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 6 smooth muscle
Mann-Whitney U	23,500
Wilcoxon W	59,500
Z	-,067
Asymp. Sig. (2-tailed)	,946
Exact Sig. [2*(1-tailed Sig.)]	,950 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

	Groups	N	Mean Rank	Sum of Ranks
IL 6 smooth muscle	Positive control group	6	8,08	48,50
	MSCs treatment group	8	7,06	56,50
	Total	14		

**Test Statistics<sup>a</sup>**

	IL 6 smooth muscle
Mann-Whitney U	20,500
Wilcoxon W	56,500
Z	-,484
Asymp. Sig. (2-tailed)	,628
Exact Sig. [2*(1-tailed Sig.)]	,662 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

	Groups	N	Mean Rank
IL 6 macrophage	Negative control group	6	7,25
	Positive control group	6	13,92
	MSCs treatment group	8	10,38
	Total	20	

**Test Statistics<sup>a,b</sup>**

	IL 6 macrophage
Chi-Square	4,008
df	2
Asymp. Sig.	,135

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups	N	Mean Rank	Sum of Ranks
IL 6 macrophage Negative control group	6	4,67	28,00
Positive control group	6	8,33	50,00
Total	12		

**Test Statistics<sup>a</sup>**

	IL 6 macrophage
Mann-Whitney U	7,000
Wilcoxon W	28,000
Z	-1,806
Asymp. Sig. (2-tailed)	,071
Exact Sig. [2*(1-tailed Sig.)]	,093 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups	N	Mean Rank	Sum of Ranks
IL 6 macrophage Negative control group	6	6,08	36,50
MSCs treatment group	8	8,56	68,50
Total	14		

**Test Statistics<sup>a</sup>**

	IL 6 macrophage
Mann-Whitney U	15,500
Wilcoxon W	36,500
Z	-1,134
Asymp. Sig. (2-tailed)	,257
Exact Sig. [2*(1-tailed Sig.)]	,282 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups	N	Mean Rank	Sum of Ranks
IL 6 macrophage Positive control group	6	9,08	54,50
MSCs treatment group	8	6,31	50,50
Total	14		

**Test Statistics<sup>a</sup>**

	IL 6 macrophage
Mann-Whitney U	14,500
Wilcoxon W	50,500
Z	-1,263
Asymp. Sig. (2-tailed)	,207
Exact Sig. [2*(1-tailed Sig.)]	,228 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Appendix 14.** Comparison test of TGF- $\beta$ 1 expression

**Ranks**

Groups		N	Mean Rank
TGF betha 1 endothel	Negative control group	6	8,58
	Positive control group	6	10,75
	MSCs treatment group	8	11,75
	Total	20	

**Test Statistics<sup>a,b</sup>**

	TGF betha 1 endothel
Chi-Square	1,119
df	2
Asymp. Sig.	,572

a. Kruskal Wallis Test

b. Grouping Variable:  
Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 endothel	Negative control group	6	6,00	36,00
	Positive control group	6	7,00	42,00
	Total	12		

**Test Statistics<sup>a</sup>**

	TGF betha 1 endothel
Mann-Whitney U	15,000
Wilcoxon W	36,000
Z	-,502
Asymp. Sig. (2-tailed)	,616
Exact Sig. [2*(1-tailed Sig.)]	,699 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 endothel	Negative control group	6	6,08	36,50
	MSCs treatment group	8	8,56	68,50
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF betha 1 endothel
Mann-Whitney U	15,500
Wilcoxon W	36,500
Z	-1,188
Asymp. Sig. (2-tailed)	,235
Exact Sig. [2*(1-tailed Sig.)]	,282 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 endothel	Positive control group	6	7,25	43,50
	MSCs treatment group	8	7,69	61,50
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF betha 1 endothel
Mann-Whitney U	22,500
Wilcoxon W	43,500
Z	-,207
Asymp. Sig. (2-tailed)	,836
Exact Sig. [2*(1-tailed Sig.)]	,852 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank
TGF betha 1 smooth muscle	Negative control group	6	12,17
	Positive control group	6	12,00
	MSCs treatment group	8	8,13
	Total	20	

**Test Statistics<sup>a,b</sup>**

	TGF betha 1 smooth muscle
Chi-Square	2,488
df	2
Asymp. Sig.	,288

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 smooth muscle	Negative control group	6	6,50	39,00
	Positive control group	6	6,50	39,00
	Total	12		

**Test Statistics<sup>a</sup>**

	TGF betha 1 smooth muscle
Mann-Whitney U	18,000
Wilcoxon W	39,000
Z	,000
Asymp. Sig. (2-tailed)	1,000
Exact Sig. [2*(1-tailed Sig.)]	1,000 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF beta 1 smooth muscle	Negative control group	6	9,17	55,00
	MSCs treatment group	8	6,25	50,00
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF beta 1 smooth muscle
Mann-Whitney U	14,000
Wilcoxon W	50,000
Z	-1,363
Asymp. Sig. (2-tailed)	,173
Exact Sig. [2*(1-tailed Sig.)]	,228 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF beta 1 smooth muscle	Positive control group	6	9,00	54,00
	MSCs treatment group	8	6,38	51,00
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF beta 1 smooth muscle
Mann-Whitney U	15,000
Wilcoxon W	51,000
Z	-1,295
Asymp. Sig. (2-tailed)	,195
Exact Sig. [2*(1-tailed Sig.)]	,282 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank
TGF beta 1 macrophage	Negative control group	6	9,92
	Positive control group	6	14,25
	MSCs treatment group	8	8,13
	Total	20	

**Test Statistics<sup>a,b</sup>**

	TGF beta 1 macrophage
Chi-Square	3,973
df	2
Asymp. Sig.	,137

a. Kruskal Wallis Test

b. Grouping Variable: Groups

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 macrophage	Negative control group	6	5,25	31,50
	Positive control group	6	7,75	46,50
	Total	12		

**Test Statistics<sup>a</sup>**

	TGF betha 1 macrophage
Mann-Whitney U	10,500
Wilcoxon W	31,500
Z	-1,248
Asymp. Sig. (2-tailed)	,212
Exact Sig. [2*(1-tailed Sig.)]	,240 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 macrophage	Negative control group	6	8,17	49,00
	MSCs treatment group	8	7,00	56,00
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF betha 1 macrophage
Mann-Whitney U	20,000
Wilcoxon W	56,000
Z	-,532
Asymp. Sig. (2-tailed)	,595
Exact Sig. [2*(1-tailed Sig.)]	,662 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

**Ranks**

Groups		N	Mean Rank	Sum of Ranks
TGF betha 1 macrophage	Positive control group	6	10,00	60,00
	MSCs treatment group	8	5,63	45,00
	Total	14		

**Test Statistics<sup>a</sup>**

	TGF betha 1 macrophage
Mann-Whitney U	9,000
Wilcoxon W	45,000
Z	-1,994
Asymp. Sig. (2-tailed)	,046
Exact Sig. [2*(1-tailed Sig.)]	,059 <sup>b</sup>

a. Grouping Variable: Groups

b. Not corrected for ties.

## Appendix 15. Kappa Test

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 1 alpha endothel expert 1 * IL 1 alpha endothel expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 1 alpha endothel expert 1 \* IL 1 alpha endothel expert 2 Crosstabulation**

Count

		IL 1 alpha endothel expert 2			Total
		No expression	Weak expression	Moderate expression	
IL 1 alpha endothel expert 1	No expression	0	1	0	1
	Weak expression	0	8	1	9
	Moderate expression	1	6	2	9
	Strong expression	1	0	0	1
Total		2	15	3	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,153	,136	1,108	,268
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 1 alpha smooth muscle expert 1 * IL 1 alpha smooth muscle expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 1 alpha smooth muscle expert 1 \* IL 1 alpha smooth muscle expert 2 Crosstabulation**

Count

		IL 1 alpha smooth muscle expert 2			Total
		No expression	Weak expression	Moderate expression	
IL 1 alpha smooth muscle expert 1	No expression	18	0	0	18
	Weak expression	0	1	1	2
Total		18	1	1	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,730	,187	4,219	,000
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 1 alpha macrophage expert 1 * IL 1 alpha macrophage expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 1 alpha macrophage expert 1 \* IL 1 alpha macrophage expert 2 Crosstabulation**

Count

		IL 1 alpha macrophage expert 2				Total
		No expression	Weak expression	Moderate expression	Strong expression	
IL 1 alpha macrophage expert 1	No expression	1	0	0	0	1
	Weak expression	0	6	0	0	6
	Moderate expression	0	5	2	0	7
	Strong expression	0	0	3	3	6
Total		1	11	5	3	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,429	,150	3,191	,001
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 6 endothel expert 1 * IL 6 endothel expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 6 endothel expert 1 \* IL 6 endothel expert 2 Crosstabulation**

Count

		IL 6 endothel expert 2		Total
		No expression	Weak expression	
IL 6 endothel expert 1	No expression	4	0	4
	Weak expression	0	7	7
	Moderate expression	0	9	9
Total		4	16	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,338	,121	3,541	,000
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 6 smooth muscle expert 1 * IL 6 smooth muscle expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 6 smooth muscle expert 1 \* IL 6 smooth muscle expert 2 Crosstabulation**

Count

		IL 6 smooth muscle expert 2				Total
		No expression	Weak expression	Moderate expression	Strong expression	
IL 6 smooth muscle expert 1	No expression	4	0	0	0	4
	Weak expression	1	7	2	0	10
	Moderate expression	0	5	0	0	5
	Strong expression	0	0	0	1	1
Total		5	12	2	1	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,357	,177	2,499	,012
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IL 6 macrophage expert 1 * IL 6 macrophage expert 2	20	100,0%	0	0,0%	20	100,0%

**IL 6 macrophage expert 1 \* IL 6 macrophage expert 2 Crosstabulation**

Count

		IL 6 macrophage expert 2				Total
		No expression	Weak expression	Moderate expression	Strong expression	
IL 6 macrophage expert 1	No expression	6	0	0	0	6
	Weak expression	0	3	1	0	4
	Moderate expression	0	4	1	0	5
	Strong expression	0	0	3	2	5
Total		6	7	5	2	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,468	,138	3,755	,000
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TGF beta 1 endothel expert 1 * TGF beta 1 endothel expert 2	20	100,0%	0	0,0%	20	100,0%

**TGF beta 1 endothel expert 1 \* TGF beta 1 endothel expert 2 Crosstabulation**

Count

		TGF beta 1 endothel expert 2			Total
		Weak expression	Moderate expression	Strong expression	
TGF beta 1 endothel expert 1	Weak expression	1	0	0	1
	Moderate expression	3	1	0	4
	Strong expression	0	8	7	15
Total		4	9	7	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,137	,126	1,031	,303
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TGF beta 1 smooth muscle expert 1 * TGF beta 1 smooth muscle expert 2	20	100,0%	0	0,0%	20	100,0%

**TGF beta 1 smooth muscle expert 1 \* TGF beta 1 smooth muscle expert 2 Crosstabulation**

Count

		TGF beta 1 smooth muscle expert 2			Total
		No expression	Weak expression	Moderate expression	
TGF beta 1 smooth muscle expert 1	No expression	3	2	0	5
	Weak expression	2	10	0	12
	Moderate expression	0	2	1	3
Total		5	14	1	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,412	,195	2,414	,016
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TGF beta 1 macrophage expert 1 * TGF beta 1 macrophage expert 2	20	100,0%	0	0,0%	20	100,0%

**TGF beta 1 macrophage expert 1 \* TGF beta 1 macrophage expert 2 Crosstabulation**

Count

		TGF beta 1 macrophage expert 2				Total
		No expression	Weak expression	Moderate expression	Strong expression	
TGF beta 1 macrophage expert 1	No expression	2	1	0	0	3
	Weak expression	0	7	0	0	7
	Moderate expression	0	3	2	0	5
	Strong expression	0	0	1	4	5
Total		2	11	3	4	20

**Symmetric Measures**

		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Measure of Agreement	Kappa	,645	,133	4,971	,000
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

**Appendix 16.** Ethical clearance