

## LAMPIRAN

### 1. HASIL UJI STATISTIK ANALISA GAS DARAH

#### MANN-WHITNEY TEST

##### 1. Hasil uji statistik pH pada analisa gas darah (MW)

<b>1.pH</b>											
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data
Column A	P1		P1		P1		P1		P1		P1
vs	Vs		vs		vs		vs		vs		vs
Column B	P2		P3		P4		P5		P6		P7
Mann Whitney test											
P value	1		0.559		0.0907		0.0294		0.0294		0.0294
Exact or approximate P value?	Gaussian Approximation		Gaussian Approximation		Gaussian Approximation		Gaussian Approximation		Gaussian Approximation		Gaussian Approximat
P value summary	ns		ns		ns		*		*		*
Are medians signif. different? (P < 0.05)	<b>No</b>		<b>No</b>		<b>No</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed
Sum of ranks in column A,B	18.50 , 17.50		20.50 , 15.50		24 , 12		26 , 10		26 , 10		26 , 10
Mann-Whitney U	7.5		5.5		2		0		0		0

## 2. Hasil uji statistik pCO<sub>2</sub> pada analisa gas darah (MW)

<b>2.pCO<sub>2</sub></b>							Unpaired t test data	Unpaired t test data		Unpaired t test data
Table Analyzed	Unpaired t test data									
Column A	P1		P1		P1		P1		P1	
Vs	vs		vs		vs		vs		vs	
Column B	P2		P3		P4		P5		P6	
Mann Whitney test										
P value	0.0294		0.0294		0.0294		0.0294		0.0294	
Exact or approximate P value?	Gaussian Approximation		Gaussian Approximation		Gaussian Approximation		Gaussian Approximation		Gaussian Approximation	
P value summary	*		*		*		*		*	
Are medians signif. Different? (P < 0.05)	<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>	
One- or two-tailed P value?	Two- tailed		Two- tailed		Two- tailed		Two-tailed		Two- tailed	
Sum of ranks in column A,B	26 , 10		26 , 10		26 , 10		26 , 10		26 , 10	
Mann-Whitney U	0		0		0		0		0	

### 3. Hasil statistik pO<sub>2</sub> pada analisa gas darah (MW)

<b>3.Po2</b>											
Table Analyzed	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data	Unpaired t test data
Column A	P1		P1		P1		P1		P1		P1
vs	vs		vs		vs		vs		vs		vs
Column B	P2		P3		P4		P5		P6		P7
Mann Whitney test											
P value	0.0286		0.0286		0.0286		0.0286		0.0286		0.0286
Exact or approximate P value?	Exact		Exact		Exact		Exact		Exact		Exact
P value summary	*		*		*		*		*		*
Are medians signif. different? (P < 0.05)	<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed
Sum of ranks in column A,B	26 , 10		26 , 10		26 , 10		26 , 10		26 , 10		26 , 10
Mann-Whitney U	0		0		0		0		0		0

**4. Hasil uji statistik pHCO<sub>3</sub> pada analisa gas darah (MW)**

<b>4.HCO<sub>3</sub></b>										
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data	
Column A	P1		P1		P1		P1		P1	
vs	vs		vs		vs		vs		vs	
Column B	P2		P3		P4		P5		P6	
Mann Whitney test										
P value	0.0286		0.0286		0.0286		0.0286		0.0286	
Exact or approximate P value?	Exact		Exact		Exact		Exact		Exact	
P value summary	*		*		*		*		*	
Are medians signif. different? (P < 0.05)	<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>	
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed	
Sum of ranks in column A,B	26 , 10		26 , 10		26 , 10		26 , 10		26 , 10	
Mann-Whitney U	0		0		0		0		0	

**5. Hasil uji statistik pada saturasi O<sub>2</sub> pada analisa gas darah (MW)**

<b>5.Sat O2</b>										
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data	
Column A	P1		P1		P1		P1		P1	
vs	vs		vs		vs		vs		vs	
Column B	P2		P3		P4		P5		P6	
Mann Whitney test										
P value	0.0286		0.0286		0.0286		0.0286		0.0286	
Exact or approximate P value?	Exact		Exact		Exact		Exact		Exact	
P value summary	*		*		*		*		*	
Are medians signif. different? (P < 0.05)	<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>	
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed	
Sum of ranks in column A,B	26 , 10		26 , 10		26 , 10		26 , 10		26 , 10	
Mann-Whitney U	0		0		0		0		0	

**6. Hasil uji statistik Hb pada analisa gas darah (MW)**

<b>6.Hb</b>										
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data	
Column A	P1		P1		P1		P1		P1	
vs	vs		vs		vs		vs		vs	
Column B	P2		P3		P4		P5		P6	
Mann Whitney test										
P value	0.1465		0.0286		0.0286		0.0286		0.0286	
Exact or approximate P value?	Gaussian Approximation		Exact		Exact		Exact		Exact	
P value summary	ns		*		*		*		*	
Are medians signif. different? (P < 0.05)	<b>No</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>	
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed	
Sum of ranks in column A,B	12.50 , 23.50		10 , 26		10 , 26		10 , 26		10 , 26	
Mann-Whitney U	2.5		0		0		0		0	

**7.Hasil uji statistik Hematokrit pada analisa gas darah (MW)**

<b>7.Ht</b>										
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data	
Column A	P1		P1		P1		P1		P1	
vs	vs		vs		vs		vs		vs	
Column B	P2		P3		P4		P5		P6	
Mann Whitney test										
P value	0.2454		0.0286		0.0286		0.0286		0.0286	
Exact or approximate P value?	Gaussian Approximation		Exact		Exact		Exact		Exact	
P value summary	ns		*		*		*		*	
Are medians signif. different? (P < 0.05)	<b>No</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>	
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed	
Sum of ranks in column A,B	13.50 , 22.50		10 , 26		10 , 26		10 , 26		10 , 26	
Mann-Whitney U	3.5		0		0		0		0	

### 8. Hasil uji statistik sel darah merah pada analisa gas darah (MW)

<b>8.Sel darah merah</b>											
Table Analyzed	Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		Unpaired t test data		
Column A	P1		P1		P1		P1		P1		
vs	vs		vs		vs		vs		vs		
Column B	P2		P3		P4		P5		P6		
Mann Whitney test											
P value	0.6573		0.0545		0.0286		0.0286		0.0286		
Exact or approximate P value?	Gaussian Approximation		Gaussian Approximation		Exact		Exact		Exact		
P value summary	ns		ns		*		*		*		
Are medians signif. different? (P < 0.05)	<b>No</b>		<b>No</b>		<b>Yes</b>		<b>Yes</b>		<b>Yes</b>		
One- or two-tailed P value?	Two-tailed		Two-tailed		Two-tailed		Two-tailed		Two-tailed		
Sum of ranks in column A,B	16 , 20		11 , 25		10 , 26		10 , 26		10 , 26		
Mann-Whitney U	6		1		0		0		0		

## 2.HASIL UJI STATISTIK KADAR MDA DENGAN OTAK

### MANN-WHITNEY TEST

<b>1.Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>1 jam</b>
Mann Whitney test	
P value	0.8846
Exact or approximate P value?	Gaussian Approximation
P value summary	<b>ns</b>
Are medians signif. different? (P < 0.05)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	18 , 18
Mann-Whitney U	8

<b>2.Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>3 jam</b>
Mann Whitney test	
P value	0.3094
Exact or approximate P value?	Gaussian Approximation
P value summary	<b>ns</b>
Are medians signif. different? (P < 0.05)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	14 , 22
Mann-Whitney U	4



<b>3. Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>6 jam</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? ( $P < 0.05$ )	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>4. Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>12 jam</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? ( $P < 0.05$ )	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>5. Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>24 jam</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation

P value summary	*
Are medians signif. different? ( $P < 0.05$ )	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>6.Table Analyzed</b>	Unpaired t test data
Column A	<b>Kontrol</b>
vs	vs
Column B	<b>72 jam</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? ( $P < 0.05$ )	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

### 3.HASIL UJI STATISTIK KADAR MDA DENGAN DARAH

#### MANN-WHITNEY TEST

<b>1.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
Vs	vs
Column B	<b>1 JAM</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? (P < 0.05)	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>2.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
vs	vs
Column B	<b>3 JAM</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? (P < 0.05)	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>3.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
vs	vs
Column B	<b>6 JAM</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation

P value summary	*
Are medians signif. different? (P < 0.05)	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>4.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
vs	vs
Column B	<b>12 JAM</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? (P < 0.05)	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>5.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
vs	vs
Column B	<b>24 JAM</b>
Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? (P < 0.05)	<b>Yes</b>
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

<b>6.Table Analyzed</b>	Unpaired t test data
Column A	<b>KONTROL</b>
vs	vs
Column B	<b>72 JAM</b>

Mann Whitney test	
P value	0.0294
Exact or approximate P value?	Gaussian Approximation
P value summary	*
Are medians signif. different? ( $P < 0.05$ )	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	10 , 26
Mann-Whitney U	0

#### 4.HASIL UJI STATISTIK KADAR MDA DARAH DENGAN HASIL ANALISA GAS DARAH METODE PEARSON

<b>PH darah</b>	
Number of XY Pairs	7
Pearson r	-0.9195
95% confidence interval	-0.9883 to -0.5410
P value (two-tailed)	0.0034
P value summary	**
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.8455

<b>pCo2 darah</b>	
Number of XY Pairs	7
Pearson r	-0.8835
95% confidence interval	-0.9827 to -0.3895
P value (two-tailed)	0.0084
P value summary	**
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.7805

<b>HCO3 darah</b>	
Number of XY Pairs	7
Pearson r	-0.8879
95% confidence interval	-0.9834 to -0.4066
P value (two-tailed)	0.0076
P value summary	**
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.7883

<b>Saturasi O2 darah</b>	
Number of XY Pairs	7
Pearson r	-0.9462
95% confidence interval	-0.9922 to -0.6719
P value (two-tailed)	0.0013
P value summary	**
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.8953

<b>Hemoglobin</b>	7
Number of XY Pairs	0.7556
Pearson r	0.005601 to 0.9615
95% confidence interval	0.0495

P value (two-tailed)	*
P value summary	Yes
Is the correlation significant? (alpha=0.05)	0.5709
R squared	

<b>Hematokrit</b>	
Number of XY Pairs	7
Pearson r	0.8585
95% confidence interval	0.2982 to 0.9788
P value (two-tailed)	0.0134
P value summary	*
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.7371

<b>Sel Darah Merah</b>	
Number of XY Pairs	7
Pearson r	0.8626
95% confidence interval	0.3123 to 0.9794
P value (two-tailed)	0.0125
P value summary	*
Is the correlation significant? (alpha=0.05)	Yes
R squared	0.744

## 5.LAMPIRAN FOTO ALAT KERJA, HEWAN UJI, DAN HASIL PENELITIAN



**Gambar 1 .Vortex maxi mix thermolyne**

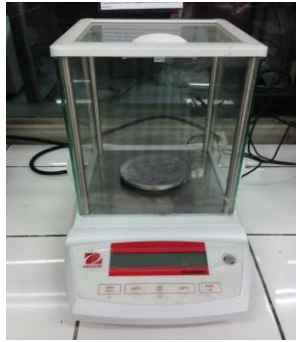


**Gambar 2. Sentrifugator minimax**



**Gambar 3.Spektrofotometri Hitachi**





**Gambar 4. timbangan ohaus**



**Gambar 5. Gas O<sub>2</sub> sebesar 8% untuk perlakuan hipoksia dalam chamber**



**Gambar 6. Air kapur bukti bahwa CO<sub>2</sub> telah di ekspirasi oleh hewan uji.**



**Gambar 7. Hewan uji diperlakukan hipoksia di dalam hypoxia chamber**



**Gambar 8. Hewan uji sedang di hipoksia sesuai perlakuan**



**Gambar 9. Wheaton stirrer untuk pembuatan homogenate organ**



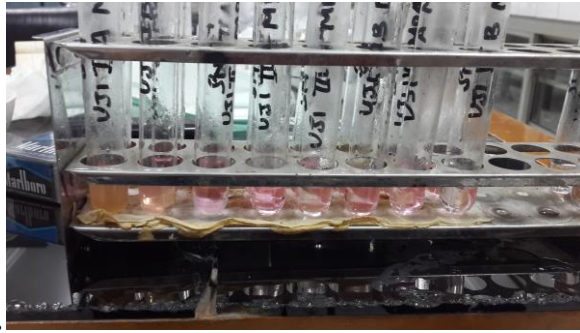
**Gambar 10. Penangas air**





**Gambar 11. Tampak superior Otak tikus**

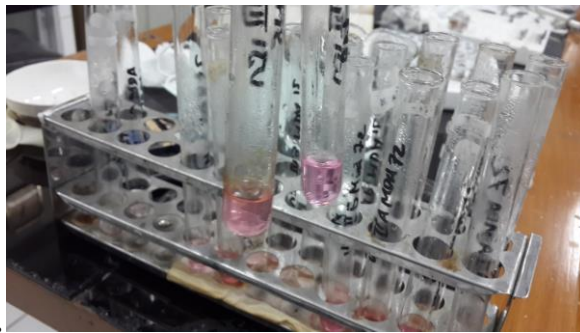




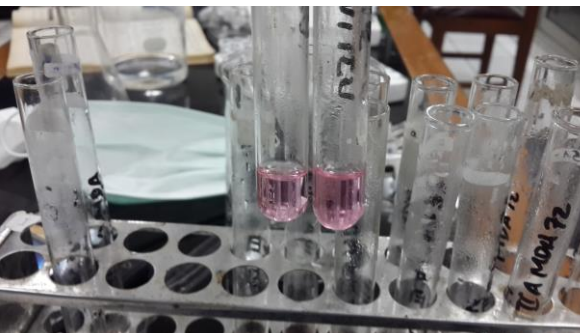
4.



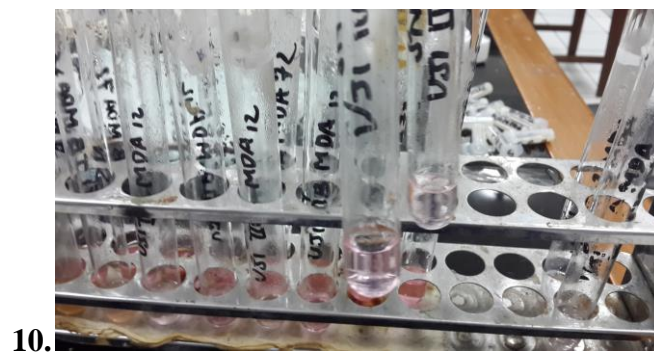
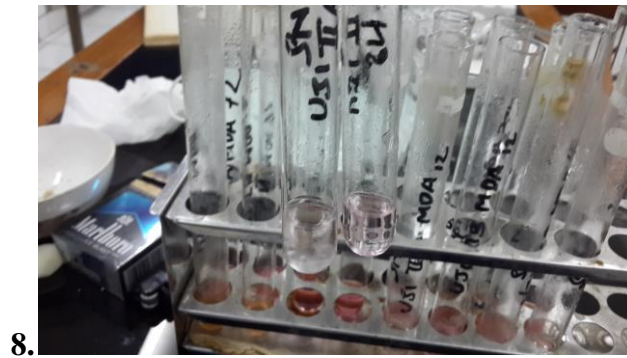
5.



6.



7.



**Gambar 12. (1-10) Hasil kadar MDA dalam jaringan setelah dipanaskan tampak berwarna merah muda, warna merah muda semakin pekat memiliki arti bahwa semakin besar kadar MDA organ uji tersebut.**



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**PERSETUJUAN ETIK**  
*Ethical Clearance*  
Nomor: 76/KER/FK/V/2015

Komisi Etik Riset Fakultas Kedokteran Universitas Trisakti setelah mempelajari dengan seksama dan mendengarkan penjelasan dari peneliti utama tentang kemungkinan adanya dampak etis terhadap subyek riset, masyarakat dan lingkungan, menetapkan penelitian dengan judul:

**"PENGARUH HIPOKSIA SISTEMIK TERHADAP KADAR MALONDIALDEHID (MDA) JANTUNG"**

Peneliti Utama : Yinvill  
Lembaga/Tempat penelitian : FK Universitas Tarumanagara

Dinyatakan memenuhi persyaratan etik untuk dilaksanakan.

Jakarta, 27 Mei 2015

Ketua  
  
Prof. DR. dr. Adi Hidayat, MS

Sekretaris  
  
dr. Alvina, SpPK

## Curriculum Vitae

**Nama** : **Steven Yosiardo Purnama**

**Nama depan** : **Steven Yosiardo**

**Nama belakang** : **Purnama**

**Jenis Kelamin** : **Laki-Laki**

**Status** : **Belum menikah**

**Tanggal lahir** : **14 November 1993**

**Kebangsaan** : **Indonesia**

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**Qualification** : **Faculty of Medicine**

**Duration** : **2011-2017**

**Institution** : **SMAK 2 BPK PENABUR, JAKARTA**

**Completed** : **2011**

**Institution** : **SMP St.CAROLINE, JAKARTA**

**Completed** : **2008**