

## LAMPIRAN

**Lampiran 1 Tabel Data Absorban Dan Kadar GSH Darah**

Kelompok	Perlakuan	Sampel	Absorban		Absorban rata-rata	Kadar
			A	B		
P1	Kontrol	Tikus 1	0.061	0.064	0.063	1.520
		Tikus 2	0.053	0.058	0.056	1.361
		Tikus 3	0.057	0.055	0.056	1.373
		Tikus 4	0.066	0.062	0.064	1.555
P2	1 Jam	Tikus 1	0.071	0.066	0.069	1.657
		Tikus 2	0.065	0.070	0.068	1.634
		Tikus 3	0.075	0.079	0.077	1.850
		Tikus 4	0.073	0.071	0.072	1.736
P3	3 Jam	Tikus 1	0.081	0.077	0.079	1.895
		Tikus 2	0.075	0.080	0.078	1.861
		Tikus 3	0.079	0.074	0.077	1.839
		Tikus 4	0.083	0.072	0.078	1.861
P4	6 Jam	Tikus 1	0.093	0.088	0.091	2.157
		Tikus 2	0.086	0.078	0.082	1.964
		Tikus 3	0.088	0.081	0.085	2.020
		Tikus 4	0.083	0.089	0.086	2.055
P5	12 Jam	Tikus 1	0.101	0.094	0.098	2.316
		Tikus 2	0.099	0.106	0.103	2.430
		Tikus 3	0.089	0.096	0.093	2.202
		Tikus 4	0.095	0.088	0.092	2.180
P6	24 Jam	Tikus 1	0.116	0.124	0.120	2.827
		Tikus 2	0.121	0.118	0.120	2.816
		Tikus 3	0.118	0.112	0.115	2.714
		Tikus 4	0.120	0.125	0.123	2.884
P7	72 Jam	Tikus 1	0.128	0.132	0.130	3.055
		Tikus 2	0.136	0.140	0.138	3.236
		Tikus 3	0.127	0.132	0.130	3.043
		Tikus 4	0.133	0.129	0.131	3.077

**Lampiran 2 Tabel Data Absorban Dan Kadar GSH Ginjal**

Kelompok	Perlakuan	Sampel	Absorban		Absorban rata-rata	Kadar
			A	B		
P1	Kontrol	Tikus 1	0.077	0.072	0.075	1.784
		Tikus 2	0.071	0.078	0.075	1.784
		Tikus 3	0.079	0.078	0.079	1.875
		Tikus 4	0.074	0.076	0.075	1.795
P2	1 Jam	Tikus 1	0.097	0.083	0.090	2.136
		Tikus 2	0.073	0.08	0.077	1.830
		Tikus 3	0.079	0.094	0.087	2.057
		Tikus 4	0.083	0.085	0.084	2.000
P3	3 Jam	Tikus 1	0.085	0.101	0.093	2.205
		Tikus 2	0.139	0.113	0.126	2.955
		Tikus 3	0.076	0.075	0.076	1.807
		Tikus 4	0.077	0.08	0.079	1.875
P4	6 Jam	Tikus 1	0.134	0.136	0.135	3.159
		Tikus 2	0.133	0.135	0.134	3.136
		Tikus 3	0.131	0.135	0.133	3.114
		Tikus 4	0.144	0.144	0.144	3.364
P5	12 Jam	Tikus 1	0.145	0.140	0.143	3.330
		Tikus 2	0.147	0.143	0.145	3.386
		Tikus 3	0.144	0.139	0.142	3.307
		Tikus 4	0.142	0.146	0.144	3.364
P6	24 Jam	Tikus 1	0.174	0.139	0.157	3.648
		Tikus 2	0.124	0.148	0.136	3.182
		Tikus 3	0.155	0.150	0.153	3.557
		Tikus 4	0.147	0.153	0.150	3.500
P7	72 Jam	Tikus 1	0.148	0.148	0.148	3.455
		Tikus 2	0.160	0.163	0.162	3.761
		Tikus 3	0.158	0.155	0.157	3.648
		Tikus 4	0.175	0.169	0.172	4.000

### Lampiran 3 Uji Statistik-1. Analisis Statistik Gas Darah dan Hematologi

#### 1. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan pH

##### Darah

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	7,43	7,43	7,42	7,41	7,4	7,4	7,39
Std. Deviation	0,014	0,018	0,018	0,012	0,008	0,008	0,008
Std. Error	0,007	0,009	0,009	0,006	0,004	0,004	0,004
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		Vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		1	0,559	0,0907	0,0294	0,0294	0,0294
Are medians signif. different? (P < 0.05)		ns	ns	ns	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

#### 2. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan pCO2

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	40,7	39,2	38,3	36,4	35,7	32,5	30,2
Std. Deviation	0,141	0,082	0,082	0,082	0,141	0,141	0,141
Std. Error	0,071	0,041	0,041	0,041	0,071	0,071	0,071
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,0294	0,0294	0,0294	0,0294	0,0294	0,0294
Are medians signif. different? (P < 0.05)		Yes	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

(lanjutan lampiran 3)

### 3. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan pO<sub>2</sub>

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	97,8	87,2	72,3	68,6	57,3	53,1	48,7
Std. Deviation	6,327	0,825	0,753	0,483	1,023	0,356	0,927
Std. Error	3,163	0,412	0,376	0,242	0,512	0,178	0,464
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,0286	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? (P < 0.05)		Yes	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

### 4. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan HCO<sub>3</sub>

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	24,8	22,2	20,4	17,9	21,4	19,3	18,2
Std. Deviation	0,497	0,258	0,141	0,408	0,424	0,141	0,294
Std. Error	0,248	0,129	0,071	0,204	0,212	0,071	0,147
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,0286	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? (P < 0.05)		Yes	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

(lanjutan lampiran 3)

### 5. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Sat O2

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	95,8	89,7	80,2	71,3	65,7	54,7	58,2
Std. Deviation	0,258	0,392	0,316	0,392	0,392	0,497	0,572
Std. Error	0,129	0,196	0,158	0,196	0,196	0,248	0,286
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,0286	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? ( $P < 0.05$ )		Yes	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

### 6. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Hemoglobin

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	120,1	120,7	123,2	126,6	133,4	148,6	162,5
Std. Deviation	0,440	0,365	0,408	0,392	0,469	0,572	0,548
Std. Error	0,220	0,183	0,204	0,196	0,235	0,286	0,274
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,1465	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? ( $P < 0.05$ )		ns	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

(lanjutan lampiran 3)

**7. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Hematokrit**

<b>Col. Stats</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
Mean	45,2	45,6	47,1	48,3	51,2	53,4	55,8
Std. Deviation	0,497	0,216	0,408	0,949	0,483	0,294	0,245
Std. Error	0,248	0,108	0,204	0,474	0,242	0,147	0,123
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,2454	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? ( $P < 0.05$ )		ns	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

**8. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Sel Darah Merah**

<b>Col. Stats</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
Mean	6,7	6,8	7	7,2	7,8	8,15	8,3
Std. Deviation	0,216	0,163	0,141	0,183	0,216	0,129	0,258
Std. Error	0,108	0,082	0,071	0,091	0,108	0,065	0,129
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,6573	0,0545	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? ( $P < 0.05$ )		ns	ns	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

## Lampiran 4 Uji Statistik-2. Kadar GSH Hati dan Darah

### 1. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Kadar GSH Darah

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	1,452	1,710	1,855	2,040	2,273	2,801	3,094
Std. Deviation	0,100	0,098	0,023	0,081	0,115	0,071	0,090
Std. Error	0,050	0,049	0,012	0,041	0,058	0,035	0,045
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0,0286	0,0286	0,0286	0,0286	0,0286	0,0286
Are medians signif. different? (P < 0.05)		Yes	Yes	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

### 2. Statistik Kolom & Uji Statistik Mann-Whitney untuk Perbedaan Kadar GSH Ginjal

Col. Stats	P1	P2	P3	P4	P5	P6	P7
Mean	1.810	2.006	2.211	3.193	3.347	3.472	3.716
Std. Deviation	0.044	0.130	0.526	0.115	0.035	0.203	0.228
Std. Error	0.022	0.065	0.263	0.058	0.018	0.101	0.114
		<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>	<b>P1</b>
<b>Mann-whitney test</b>		vs	vs	vs	vs	vs	vs
		<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
P value		0.0591	0.0796	0.0294	0.0294	0.0294	0.0294
Are medians signif. different? (P < 0.05)		No	No	Yes	Yes	Yes	Yes
One- or two-tailed P value?		Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed	Two-tailed

**Lampiran 5 Uji Statistik-3. Korelasi antara Tekanan O<sub>2</sub> arteri dan Kadar GSH Darah**

**1. Tekanan O<sub>2</sub> arteri dan Kadar GSH Darah**

Table Format :		X	Y
XY		pO <sub>2</sub> (mmHg)	Kadar GSH Darah (ug/mL)
1	P1	97,8	1.452
2	P2	87,2	1.71
3	P3	72,3	1.855
4	P4	68,6	2.04
5	P5	57,3	2.273
6	P6	53,1	2.801
7	P7	48,7	3.094



(lanjutan lampiran 5)

## 2. Uji Regresi Linear Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Darah

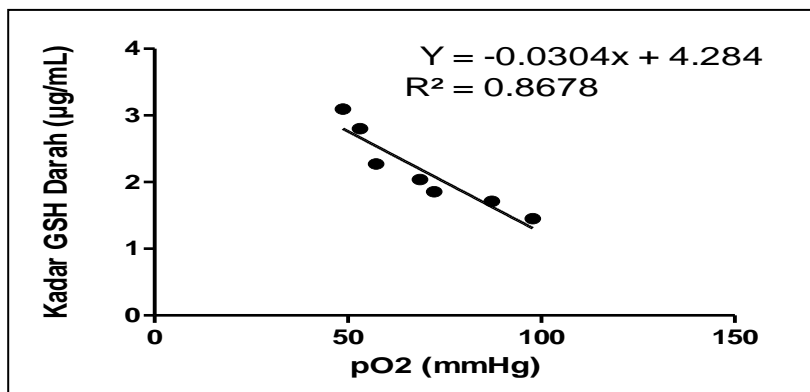
Linear Regression		A
		Kadar GSH Darah
		Y
1	Best-fit values	
2	Slope	-0.03043 ± 0.005312
3	Y-intercept when X=0.0	4.284 ± 0.3787
4	X-intercept when Y=0.0	140.8
5	1/slope	-32.86
6	95% Confidence Intervals	
7	Slope	-0.04409 to -0.01678
8	Y-intercept when X=0.0	3.310 to 5.257
9	X-intercept when Y=0.0	117.7 to 199.8
10	Goodness of Fit	
11	r <sup>2</sup>	0.8678
12	Sy.x	0.2359
13	Is slope significantly non-zero?	
14	F	32.83
15	DFn, DFd	1.000, 5.000
16	P value	0.0023
17	Deviation from zero?	Significant
18	Data	
19	Number of X values	7
20	Maximum number of Y replicates	1
21	Total number of values	7
22	Number of missing values	0

(lanjutan lampira 5)

### 3. Uji Korelasi Pearson Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Darah

Correlation		Kadar GSH Darah
		Y
P1	Number of XY Pairs	7
P2	Pearson r	-0.9316
P3	95% confidence interval	-0.9901 to -0.5979
P4	P value (two-tailed)	0.0023
P5	P value summary	**
P6	Is the correlation significant? (alpha = 0.05)	Yes
P7	R squared	0.8678

### 4. Grafik Regresi Linear Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Darah



**Lampiran 6 Uji Statistik-4. Korelasi antara Tekanan O<sub>2</sub> arteri dan Kadar GSH Ginjal**

**1. Tekanan O<sub>2</sub> arteri dan Kadar GSH Ginjal**

Table Format :		X	Y
XY		pO <sub>2</sub> (mmHg)	Kadar GSH Ginjal (ug/mL)
1	P1	97,8	1.81
2	P2	87,2	2.006
3	P3	72,3	2.211
4	P4	68,6	3.193
5	P5	57,3	3.347
6	P6	53,1	3.472
7	P7	48,7	3.716

(lanjutan lampiran 6)

## 2. Uji Regresi Linear Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Ginjal

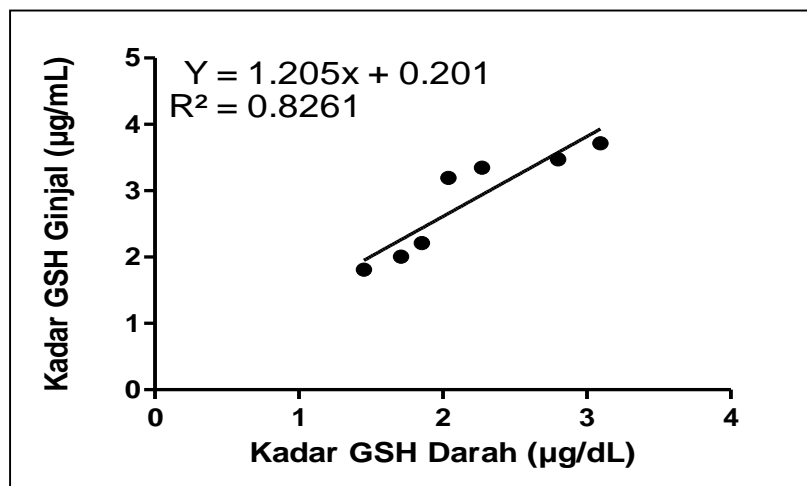
Linear Regression		A
		Kadar GSH Ginjal
		Y
1	Best-fit values	
2	Slope	1.205 ± 0.2472
3	Y-intercept when X=0.0	0.2016 ± 0.5544
4	X-intercept when Y=0.0	-0.1673
5	1/slope	0.83
6	95% Confidence Intervals	
7	Slope	0.5693 to 1.840
8	Y-intercept when X=0.0	-1.224 to 1.627
9	X-intercept when Y=0.0	-2.816 to 0.6751
10	Goodness of Fit	
11	r <sup>2</sup>	0.8261
12	Sy.x	0.3587
13	Is slope significantly non-zero?	
14	F	23.76
15	DFn, DFd	1.000, 5.000
16	P value	0.0046
17	Deviation from zero?	Significant
18	Data	
19	Number of X values	7
20	Maximum number of Y replicates	1
21	Total number of values	7
22	Number of missing values	0

(lanjutan lampiran 6)

### 3. Uji Korelasi Pearson Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Ginjal

Correlation		Kadar GSH Ginjal
		Y
P1	Number of XY Pairs	7
P2	Pearson r	-0.9456
P3	95% confidence interval	0.9922 to -0.6689
P4	P value (two-tailed)	0.0013
P5	P value summary	**
P6	Is the correlation significant? (alpha = 0.05)	Yes
P7	R squared	0.8942

### 4. Grafik Regresi Linier Antara Tekanan O<sub>2</sub> Arteri Dan Kadar GSH Ginjal



**Lampiran 7 Uji Statistik-5. Korelasi antara Kadar GSH Darah Dan Kadar GSH Ginjal**

**1. Kadar GSH Darah Dan Kadar Ginjal Ginjal**

Table Format :		X	Y
XY		Kadar GSH Darah (ug/mL)	Kadar GSH Ginjal (ug/mL)
1	P1	1.452	1.81
2	P2	1.71	2.006
3	P3	1.855	2.211
4	P4	2.04	3.193
5	P5	2.273	3.347
6	P6	2.801	3.472
7	P7	3.094	3.716

(lanjutan lampiran 7)

## 2. Uji Regresi Linier Antara Kadar GSH Darah dan Kadar GSH Ginjal

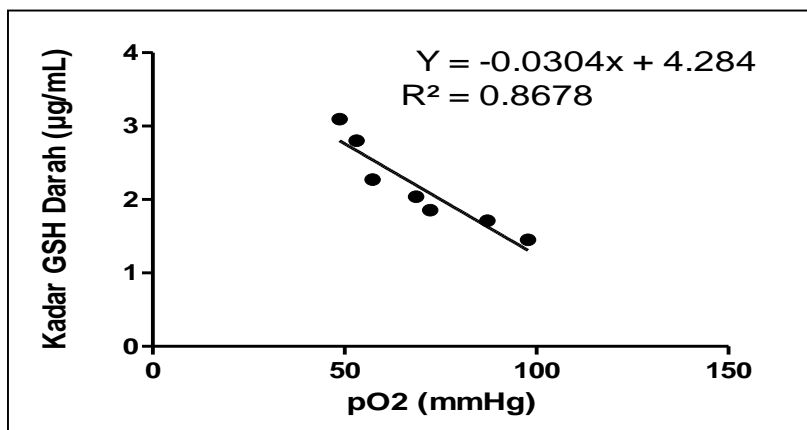
Linear Regression		A
		Kadar GSH Darah
		Y
1	Best-fit values	
2	Slope	-0.03043 ± 0.005312
3	Y-intercept when X=0.0	4.284 ± 0.3787
4	X-intercept when Y=0.0	140.8
5	1/slope	-32.86
6	95% Confidence Intervals	
7	Slope	-0.04409 to -0.01678
8	Y-intercept when X=0.0	3.310 to 5.257
9	X-intercept when Y=0.0	117.7 to 199.8
10	Goodness of Fit	
11	r <sup>2</sup>	0.8678
12	Sy.x	0.2359
13	Is slope significantly non-zero?	
14	F	32.83
15	DFn, DFd	1.000, 5.000
16	P value	0.0023
17	Deviation from zero?	Significant
18	Data	
19	Number of X values	7
20	Maximum number of Y replicates	1
21	Total number of values	7
22	Number of missing values	0

(lanjutan lampiran 7)

### 3. Uji Korelasi Pearson Antara Kadar GSH Darah Dan Kadar GSH Ginjal

Correlation		Kadar GSH Ginjal
		Y
P1	Number of XY Pairs	7
P2	Pearson r	0.9089
P3	95% confidence interval	0.4938 to 0.9867
P4	P value (two-tailed)	0.0046
P5	P value summary	**
P6	Is the correlation significant? (alpha = 0.05)	Yes
P7	R squared	0.8261

### 4. Grafik Regresi Linier Antara Kadar GSH Darah Dan Kadar GSH Ginjal





## Lampiran 8 Keterangan Lolos Kaji Etik



KOMISI ETIK RISET  
FAKULTAS KEDOKTERAN  
UNIVERSITAS TRISAKTI  
Jalan Kyai Tapa, Grogol, (Kampus B) Jakarta 11440  
Telp: (021) 5672731, 5655786  
Fax : (021) 5660706

**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

*Alvina*

dr.Alvina.SpPK

## Lampiran 9 Alat Penelitian

### 1. Sungkup Hipoksia



### 2. Spektrofotometri



(lanjutan lampiran 9)

**4. Alat Sentrifugasi**



**5. Tissue Grinder**



## **RIWAYAT HIDUP**

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  - SMA Fr Don Bosco Manado:2009 – 2012
  - SMP Fr Don Bosco Manado:2006 – 2009
  - SD Fr Don Bosco Manado : 2000 – 2006
10. Riwayat Organisasi :
  - Anggota BEM FK Untar periode 2014-2015
  - Anggota iCU FK Untar