

LAMPIRAN 1  
 UJI NORMALITAS DAN HOMOGENITAS

1. SGOT

One-Sample Kolmogorov-Smirnov Test

		SGOT
N		20
Normal Parameters <sup>a</sup>	Mean	141.75
	Std. Deviation	32.743
Most Extreme Differences	Absolute	.190
	Positive	.190
	Negative	-.116
Kolmogorov-Smirnov Z		.850
Asymp. Sig. (2-tailed)		.465

Nilai signifikansi = 0,465 ( $p > 0,05$ ) yang berarti bahwa distribusi data normal.

Test of Homogeneity of Variances

SGOT

Levene Statistic	df1	df2	Sig.
2.974	4	15	.054

Nilai signifikansi = 0,054 ( $p > 0,05$ ) yang berarti data mempunyai ragam (varians) yang relatif homogen.



## 2. SGPT

**One-Sample Kolmogorov-Smirnov Test**

		SGPT
N		20
Normal Parameters <sup>a</sup>	Mean	93.65
	Std. Deviation	42.995
Most Extreme Differences	Absolute	.178
	Positive	.178
	Negative	-.124
Kolmogorov-Smirnov Z		.797
Asymp. Sig. (2-tailed)		.549

Nilai signifikansi = 0,549 ( $p > 0,05$ ) yang berarti bahwa distribusi data normal.

**Test of Homogeneity of Variances**

SGPT			
Levene Statistic	df1	df2	Sig.
1.605	4	15	.225

Nilai signifikansi = 0,225 ( $p > 0,05$ ) yang berarti data mempunyai ragam (varians) yang relatif homogen.

### 3. Protein Total

One-Sample Kolmogorov-Smirnov Test

		Total_Protein
N		20
Normal Parameters <sup>a</sup>	Mean	6.1415
	Std. Deviation	.35754
Most Extreme Differences	Absolute	.204
	Positive	.204
	Negative	-.118
Kolmogorov-Smirnov Z		.912
Asymp. Sig. (2-tailed)		.377

Nilai signifikansi = 0,377 ( $p > 0,05$ ) yang berarti bahwa distribusi data normal.

Test of Homogeneity of Variances

Total_Protein			
Levene Statistic	df1	df2	Sig.
.765	4	15	.564

Nilai signifikansi = 0,564 ( $p > 0,05$ ) yang berarti data mempunyai ragam (varians) yang relatif homogen.

4. Bilirubin Total

One-Sample Kolmogorov-Smirnov Test

		Bilirubin_Total
N		20
Normal Parameters <sup>a</sup>	Mean	.1295
	Std. Deviation	.02481
Most Extreme Differences	Absolute	.192
	Positive	.192
	Negative	-.116
Kolmogorov-Smirnov Z		.858
Asymp. Sig. (2-tailed)		.453

Nilai signifikansi = 0,453 ( $p > 0,05$ ) yang berarti bahwa distribusi data normal.

Test of Homogeneity of Variances

Bilirubin_Total			
Levene Statistic	df1	df2	Sig.
2.712	4	15	.070

Nilai signifikansi = 0,070 ( $p > 0,05$ ) yang berarti data mempunyai ragam (varians) yang relatif homogen.



LAMPIRAN 2

UJI ANOVA

1. SGOT

ANOVA					
SGOT					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16388.500	4	4097.125	15.437	.000
Within Groups	3981.250	15	265.417		
Total	20369.750	19			

Nilai signifikansi = 0,000 ( $p < 0,05$ ) yang berarti bahwa ada perbedaan signifikan pada perubahan dosis ekstrak terhadap kadar SGOT.

Multiple Comparisons

SGOT  
Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
kontrol negatif	kontrol positif	-62.000*	11.520	.001	-97.57	-26.43
	P1	-33.750	11.520	.067	-69.32	1.82
	P2	.500	11.520	1.000	-35.07	36.07
	P3	17.750	11.520	.554	-17.82	53.32
kontrol positif	kontrol negatif	62.000*	11.520	.001	26.43	97.57
	P1	28.250	11.520	.155	-7.32	63.82
	P2	62.500*	11.520	.001	26.93	98.07
	P3	79.750*	11.520	.000	44.18	115.32
P1	kontrol negatif	33.750	11.520	.067	-1.82	69.32
	kontrol positif	-28.250	11.520	.155	-63.82	7.32
	P2	34.250	11.520	.062	-1.32	69.82
	P3	51.500*	11.520	.003	15.93	87.07
P2	kontrol negatif	-.500	11.520	1.000	-36.07	35.07
	kontrol positif	-62.500*	11.520	.001	-98.07	-26.93
	P1	-34.250	11.520	.062	-69.82	1.32
	P3	17.250	11.520	.579	-18.32	52.82
P3	kontrol negatif	-17.750	11.520	.554	-53.32	17.82
	kontrol positif	-79.750*	11.520	.000	-115.32	-44.18
	P1	-51.500*	11.520	.003	-87.07	-15.93
	P2	-17.250	11.520	.579	-52.82	18.32

\*. The mean difference is significant at the 0.05 level.



Dengan uji Post Hoc Tukey dapat diketahui perbedaan antar tiap pasangan kelompok perlakuan (dosis dan kadar SGOT).

**Homogeneous Subsets**

**SGOT**

Tukey HSD

Kelompok	N	Subset for alpha = 0.05		
		1	2	3
P3	4	108.50		
P2	4	125.75	125.75	
kontrol negatif	4	126.25	126.25	
P1	4		160.00	160.00
kontrol positif	4			188.25
Sig.		.554	.062	.155

Means for groups in homogeneous subsets are displayed.

**2. SGPT**

ANOVA					
SGPT					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	31485.800	4	7871.450	32.466	.000
Within Groups	3636.750	15	242.450		
Total	35122.550	19			

Nilai signifikansi = 0,000 ( $p < 0,05$ ) yang berarti bahwa ada perbedaan signifikan pada perubahan dosis ekstrak terhadap kadar SGPT.

**Post Hoc Test**



## Multiple Comparisons

SGPT  
Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
kontrol negatif	kontrol positif	-113.750 <sup>*</sup>	11.010	.000	-147.75	-79.75
	P1	-51.750 <sup>*</sup>	11.010	.002	-85.75	-17.75
	P2	-32.250	11.010	.067	-66.25	1.75
	P3	-14.250	11.010	.699	-48.25	19.75
kontrol positif	kontrol negatif	113.750 <sup>*</sup>	11.010	.000	79.75	147.75
	P1	62.000 <sup>*</sup>	11.010	.000	28.00	96.00
	P2	81.500 <sup>*</sup>	11.010	.000	47.50	115.50
	P3	99.500 <sup>*</sup>	11.010	.000	65.50	133.50
P1	kontrol negatif	51.750 <sup>*</sup>	11.010	.002	17.75	85.75
	kontrol positif	-62.000 <sup>*</sup>	11.010	.000	-96.00	-28.00
	P2	19.500	11.010	.424	-14.50	53.50
	P3	37.500 <sup>*</sup>	11.010	.027	3.50	71.50
P2	kontrol negatif	32.250	11.010	.067	-1.75	66.25
	kontrol positif	-81.500 <sup>*</sup>	11.010	.000	-115.50	-47.50
	P1	-19.500	11.010	.424	-53.50	14.50
	P3	18.000	11.010	.499	-16.00	52.00
P3	kontrol negatif	14.250	11.010	.699	-19.75	48.25
	kontrol positif	-99.500 <sup>*</sup>	11.010	.000	-133.50	-65.50
	P1	-37.500 <sup>*</sup>	11.010	.027	-71.50	-3.50
	P2	-18.000	11.010	.499	-52.00	16.00

\*. The mean difference is significant at the 0.05 level.

Dengan uji Post Hoc Tukey dapat diketahui perbedaan antar tiap pasangan kelompok perlakuan (dosis dan kadar SGPT).

## Homogeneous Subsets

SGPT

Tukey HSD

Kelompok	N	Subset for alpha = 0.05		
		1	2	3
kontrol negatif	4	51.25		
P3	4	65.50		
P2	4	83.50	83.50	
P1	4		103.00	
kontrol positif	4			165.00
Sig.		.067	.424	1.000

Means for groups in homogeneous subsets are displayed.

### 3. Bilirubin Total

ANOVA					
Bilirubin_Total					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.008	4	.002	9.440	.001
Within Groups	.003	15	.000		
Total	.012	19			

Nilai signifikansi = 0,001 ( $p < 0,05$ ) yang berarti bahwa ada perbedaan signifikan pada perubahan dosis ekstrak terhadap kadar bilirubin total.

### Post Hoc Test

Multiple Comparisons						
Bilirubin_Total						
Tukey HSD						
(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
kontrol negatif	kontrol positif	-.05750*	.01053	.001	-.0900	-.0250
	P1	-.04250*	.01053	.008	-.0750	-.0100
	P2	-.02000	.01053	.359	-.0525	.0125
	P3	-.01500	.01053	.622	-.0475	.0175
kontrol positif	kontrol negatif	.05750*	.01053	.001	.0250	.0900
	P1	.01500	.01053	.622	-.0175	.0475
	P2	.03750*	.01053	.020	.0050	.0700
	P3	.04250*	.01053	.008	.0100	.0750
P1	kontrol negatif	.04250*	.01053	.008	.0100	.0750
	kontrol positif	-.01500	.01053	.622	-.0475	.0175
	P2	.02250	.01053	.255	-.0100	.0550
	P3	.02750	.01053	.118	-.0050	.0600
P2	kontrol negatif	.02000	.01053	.359	-.0125	.0525
	kontrol positif	-.03750*	.01053	.020	-.0700	-.0050
	P1	-.02250	.01053	.255	-.0550	.0100
	P3	.00500	.01053	.989	-.0275	.0375
P3	kontrol negatif	.01500	.01053	.622	-.0175	.0475
	kontrol positif	-.04250*	.01053	.008	-.0750	-.0100
	P1	-.02750	.01053	.118	-.0600	.0050
	P2	-.00500	.01053	.989	-.0375	.0275

\*. The mean difference is significant at the 0.05 level.

Dengan uji Post Hoc Tukey dapat diketahui perbedaan antar tiap pasangan kelompok perlakuan (dosis dan kadar bilirubin total).



### Homogeneous Subsets

Bilirubin_Total				
Tukey HSD				
Kelompok	N	Subset for alpha = 0.05		
		1	2	3
kontrol negatif	4	.1025		
P3	4	.1175	.1175	
P2	4	.1225	.1225	
P1	4		.1450	.1450
kontrol positif	4			.1600
Sig.		.359	.118	.622

Means for groups in homogeneous subsets are displayed.

### 4. Protein Total

ANOVA					
Total_Protein					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.130	4	.532	26.715	.000
Within Groups	.299	15	.020		
Total	2.429	19			

Nilai signifikansi = 0,000 ( $p < 0,05$ ) yang berarti bahwa ada perbedaan

signifikan pada perubahan dosis ekstrak terhadap kadar protein total.

### Multiple Comparisons

Total\_Protein  
Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
kontrol negatif	kontrol positif	.91000*	.09983	.000	.6017	1.2183
	P1	.76500*	.09983	.000	.4567	1.0733
	P2	.69750*	.09983	.000	.3892	1.0058
	P3	.37000*	.09983	.015	.0617	.6783
kontrol positif	kontrol negatif	-.91000*	.09983	.000	-1.2183	-.6017
	P1	-.14500	.09983	.606	-.4533	.1633
	P2	-.21250	.09983	.259	-.5208	.0958
	P3	-.54000*	.09983	.001	-.8483	-.2317

P1	kontrol negatif	-.76500*	.09983	.000	-1.0733	-.4567
	kontrol positif	.14500	.09983	.606	-.1633	.4533
	P2	-.06750	.09983	.959	-.3758	.2408
	P3	-.39500*	.09983	.009	-.7033	-.0867
P2	kontrol negatif	-.69750*	.09983	.000	-1.0058	-.3892
	kontrol positif	.21250	.09983	.259	-.0958	.5208
	P1	.06750	.09983	.959	-.2408	.3758
	P3	-.32750*	.09983	.035	-.6358	-.0192
P3	kontrol negatif	-.37000*	.09983	.015	-.6783	-.0617
	kontrol positif	.54000*	.09983	.001	.2317	.8483
	P1	.39500*	.09983	.009	.0867	.7033
	P2	.32750*	.09983	.035	.0192	.6358

\*. The mean difference is significant at the 0.05 level.

Dengan uji Post Hoc Tukey dapat diketahui perbedaan antar tiap pasangan kelompok perlakuan (dosis dan kadar protein total).

### Homogeneous Subsets

Total_Protein				
Tukey HSD				
Kelompok	N	Subset for alpha = 0.05		
		1	2	3
kontrol positif	4	5.7800		
P1	4	5.9250		
P2	4	5.9925		
P3	4		6.3200	
kontrol negatif	4			6.6900
Sig.		.259	1.000	1.000

Means for groups in homogeneous subsets are displayed.

LAMPIRAN 3  
UJI KORELASI REGRESI

1. SGOT

Correlations			
		dosis	SGOT
Dosis	Pearson Correlation	1	-.879**
	Sig. (2-tailed)		.000
	N	12	12
SGOT	Pearson Correlation	-.879**	1
	Sig. (2-tailed)	.000	
	N	12	12

\*\* . Correlation is significant at the 0.01 level (2-tailed).

2. SGPT

Correlations			
		dosis	SGPT
Dosis	Pearson Correlation	1	-.861**
	Sig. (2-tailed)		.000
	N	12	12
SGPT	Pearson Correlation	-.861**	1
	Sig. (2-tailed)	.000	
	N	12	12

\*\* . Correlation is significant at the 0.01 level (2-tailed).



### 3. PROTEIN TOTAL

Correlations

		Total_Protein	dosis
Total_Protein	Pearson Correlation	1	.746**
	Sig. (2-tailed)		.005
	N	12	12
Dosis	Pearson Correlation	.746**	1
	Sig. (2-tailed)	.005	
	N	12	12

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 4. BILIRUBIN TOTAL

Correlations

		Bilirubin_Total	dosis
Bilirubin_Total	Pearson Correlation	1	-.675*
	Sig. (2-tailed)		.016
	N	12	12
Dosis	Pearson Correlation	-.675*	1
	Sig. (2-tailed)	.016	
	N	12	12

\* . Correlation is significant at the 0.05 level (2-tailed).



LAMPIRAN 4  
DOKUMENTASI



KOMISI ETIK PENELITIAN KESEHATAN  
FAKULTAS KEDOKTERAN UNIVERSITAS BRAWIJAYA

KETERANGAN KELAIKAN ETIK  
("ETHICAL CLEARANCE")  
No. 061 / EC / KEPK-S1- JK/ 02 / 2012

Setelah Tim Etik Penelitian Mahasiswa Fakultas Kedokteran Universitas Brawijaya mempelajari dengan seksama rancangan penelitian yang diusulkan :

- Judul : HEPAREGS (*Hepar Regenerated by Stem Cells*): Pengembangan Terapi Regeneratif Sebagai Alternatif Transplantasi pada Penyakit Sirosis Hepar Menggunakan Ekstrak Oats (*Avena Sativa L*)
- Peneliti : Afriy kaysa Wunfi NIM : 105070100111070  
 Mirza Zaka Pratama NIM : 0810713023  
 Dewangga Primananda Susanto NIM : 105070103121008  
 Adhika Rakhmadewi NIM : 105070104121011  
 M.Vardian Mahardika NIM : 105070104121002
- Unit / Lembaga : Jurusan Kedokteran Fakultas Kedokteran Universitas Brawijaya Malang
- Tempat Penelitian : Laboratorium Farmakologi Fakultas Kedokteran Univ. Brawijaya Malang

Maka dengan ini menyatakan bahwa penelitian tersebut telah memenuhi syarat atau laik etik.

28 FEB 2012



Prof.Dr.Af.Teguh W.Sardjono, DTM&H, MSc, SpParK  
NIP. 19520410 198002 1 001





UNIVERSITAS GADJAH MADA

**LABORATORIUM PENELITIAN DAN PENGUJIAN TERPADU  
( LPPT - UGM )**

Bidang Layanan Penelitian Pra - Klinik dan Pengembangan Hewan Percobaan

Jl. Agro Karang Malang Kampus UGM

Telp. (0274) 7497705, FAX ( 0274 ) 546368, e-mail: lppt\_info@mail.ugm.ac.id

**SURAT KETERANGAN**  
**NO : 212/LP3HP/25/I/2012**

Yang bertanda tangan di bawah ini :

Nama : Dr. drh. Pudji Astuti, MP.  
NIP : 19601012 198703 2 001  
Jabatan : Kabid Unit Pra Klinik – LPPT UGM.

Menerangkan bahwa ;

Nama : Muhammad Yardlan Mahardika  
NIM : 105070104121002  
Instansi : Pendidikan dokter 2010  
Fakultas Kedokteran UNIBRAW Malang

Pada bulan Januari 2012 membeli Tikus putih (*Rattus norvegicus* L.)  
Jantan galur *Wistar* usia 2 1/2 bulan sejumlah 55 (Lima puluh Lima)  
Ekor dari Unit Pra- Klinik LPPT Universitas Gadjah Mada

Hewan tersebut dalam keadaan masih Fertile dan tidak terinfeksi  
penyakit sehingga tidak menularkan penyakit.  
Menurut keterangan dari yang bersangkutan hewan tersebut akan  
dibawa ke Fakultas Kedokteran UNIBRAW Malang dan akan  
digunakan sebagai hewan percobaan Penelitian.

Demikian surat keterangan ini dibuat, agar dapat dipergunakan  
sebagaimana mestinya.

Atas kerjasama yang baik diucapkan terima kasih.

Yogyakarta, 25 Januari 2012

Kabid Unit Pra – Klinik,

Dr. drh. Pudji Astuti, M. P.

NIP : 19601012 198703 2 001





**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
DIREKTORAT JENDERAL PENDIDIKAN TINGGI  
PIAGAM PENGHARGAAN**

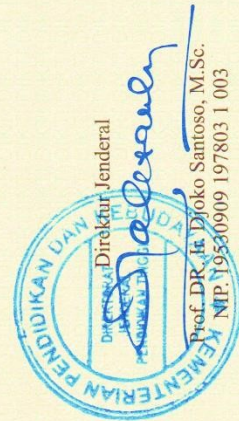
**Nomor: 951/E/T/2012**

Direktur Jenderal Pendidikan Tinggi, Kementerian Pendidikan dan Kebudayaan Republik Indonesia memberikan penghargaan kepada:

Nama : M. Vardian Mahardika  
 Perguruan Tinggi : Universitas Brawijaya  
 Bidang Kegiatan : Program Kreativitas Mahasiswa Penelitian (PKMP)  
 Judul : HEPAREGS (Hepar Regenerated Stem Cell): Pengembangan Terapi Regeneratif sebagai Alternatif Transplantasi pasca Penyakit Sirosis Hepar menggunakan Ekstrak Oats (Avena Sativa L.)

Atas perannya dalam rangka mengikuti "PEKAN ILMIAH MAHASISWA NASIONAL (PIMNAS) XXV" pada tanggal 9-14 Juli 2012 yang diselenggarakan oleh Direktorat Jenderal Pendidikan Tinggi Kementerian dan Kebudayaan bekerjasama dengan Universitas Muhammadiyah Yogyakarta sebagai:

**PESERTA**



Sertifikat Penghargaan *Peserta* dalam acara Pekan Ilmiah Mahasiswa Nasional  
(PIMNAS) bidang PKM-Penelitian tahun 2012





**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
DIREKTORAT JENDERAL PENDIDIKAN TINGGI  
PIAGAM PENGHARGAAN**

**Nomor : 951/E/T/2012**

Direktur Jenderal Pendidikan Tinggi, Kementerian Pendidikan dan Kebudayaan Republik Indonesia memberikan penghargaan kepada:

Nama : M. Vardian Mahardika

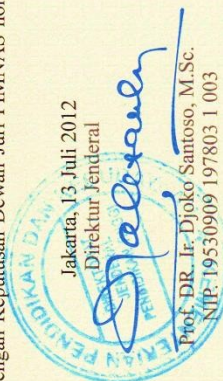
Perguruan Tinggi : Universitas Brawijaya

Atas prestasinya dalam penyusunan dan presentasi ilmiah PKM-P yang berjudul :

**HEPAREGS (Hepar Regenerated Stem Cell): Pengembangan Terapi Regeneratif sebagai Alternatif Transplantasi pada Penyakit Sirosis Hepar menggunakan Ekstrak Oats (Avena Sativa L.)**

dan dinyatakan sebagai penerima penghargaan **setara Emas**

Pada Pekan Ilmiah Mahasiswa Nasional (PIMNAS) XXV tahun 2012 yang diselenggarakan pada tanggal 09 s.d 14 Juli 2012 bertempat di Universitas Muhammadiyah Yogyakarta sesuai dengan Keputusan Dewan Juri PIMNAS nomor : 002/SK-DJ/PIMNAS XXV/UMY/2012 tanggal 12 Juli 2012.



Sertifikat Penghargaan *Setara Emas* dalam acara Pekan Ilmiah Mahasiswa Nasional (PIMNAS) Bidang PKM-Penelitian tahun 2012



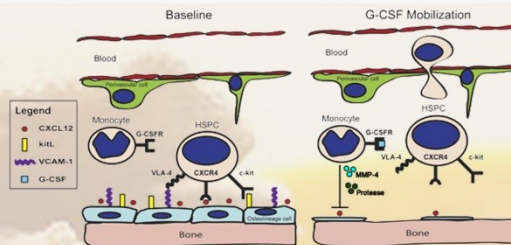


## REGENERATIVE THERAPY INNOVATION FOR LIVER CIRRHOSIS BY MOBILIZATION OF HEMATOPOIETIC STEM CELLS AS AN ALTERNATIVE FOR TRANSPLANTATION BY OATS (*Avena sativa* L.)

Vardian Mahardika, Afyif Kaysa W., Mirza Zaka P., Dewangga P., Andhika Rahmidewi, Hikmawan, MD  
Faculty of Medicine, Brawijaya University

### INTRODUCTION

Liver cirrhosis is a chronic inflammation that involves many factors. The continuous result of inflammation is associated with dying liver cells that causes fibrous tissues to form. As a result, the liver is not functioning properly, and eventually liver will die. Liver Transplantation as the best therapy now still has a high failure rate. Regenerative therapy is a potential therapy to be developed. Oats contains beta-glucan that can increase the level of G-CSF (Granulocyte Colony Stimulating Factor) in the body. Elevated levels of G-CSF would increase the release of hematopoietic stem cells into the body circulation. Hematopoietic stem cells will be mobilized into the liver and regenerate liver cells that have been damaged.



Releasing Process of Hematopoietic Stem Cell from Bone Marrow into Circulation  
(Picture taken from <http://hematology.wustl.edu/faculty/linklinkbio.html> with modification)

### BACKGROUND

Mortality rate of liver cirrhosis in Indonesia is 13,9 % over the world (WHO, 2004). Liver transplant still become the most preferred therapy but the mortality rate still high (Lipshutz, 2007).

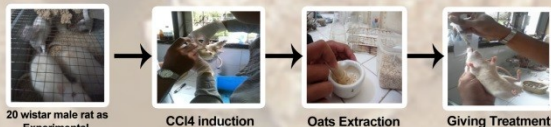


Liver Cirrhosis

### OBJECTIVES

Determine the effects of oats in restoring anatomical structures and physiological functions of the liver cirrhosis.

### MATERIAL & METHODS



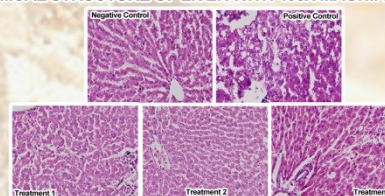
Blood and organ sampling

Group	Treatment
Negative Control	Negative for any treatment
Positive Control	CCl4 induction without oats as diet
Treatment 1	CCl4 induction+90 mg/kgBW of oats
Treatment 2	CCl4 induction+180 mg/kgBW of oats
Treatment 3	CCl4 induction+360 mg/kgBW of oats

This study is true experimental research with posttest only controlled group design. 20 wistar male rats as experimental animals were divided into 5 groups : negative control, positive control, Treatment 1 (CCl4+Oats extraction 90mg/kgBB), Treatment 2 (CCl4+Oats extraction 180mg/kgBB), treatment 3 (CCl4+Oats extraction 360mg/kgBB). CCl4 to induce hepatic damage was injected 1 ml / kg body weight for 8 weeks in subcutaneous . Oats are given daily from week 3 to week 8.

### RESULTS :

#### ANATOMICAL STRUCTURE OF LIVER WITH 400X MAGNIFICATION (HE)



The results showed that administration of oats is able to restore the anatomical structure of the liver qualitatively.



NOTE : 1 = Negative Control ; 2 = Positive Control; 3 = Treatment 1 (Oats 90mg/KgBW); 4 = Treatment 2 (Oats 180mg/KgBW); 5 = Treatment 3 (Oats 360mg/KgBW)

\* ) Significantly Different with Positive Control; + ) Not Significantly Different with Negative Control

Statistical Analysis using One Way Anova shows that oats could reduce the levels of SGOT, SGPT, and bilirubin significantly ( $p < 0,05$ ). Oats are able to increase the total protein levels significantly ( $p < 0,05$ ). There is a strong and significant correlation between the provision of oats with reduced levels of SGOT levels ( $R = -0,879$ ), SGPT levels ( $R = -0,861$ ), bilirubin levels ( $R = -0,675$ ) and elevated levels of total protein ( $R = 0,746$ ).

### CONCLUSION :

Oats can increase the mobilization of hematopoietic stem cells to regenerate liver cirrhosis, indicated by the return of anatomical structures and physiological functions of the liver (decreased levels of SGOT, SGPT, total bilirubin, and increased levels of total protein).

Thus, oats can become a regenerative therapy innovation for liver cirrhosis by mobilization of hematopoietic stem cells as an alternative for liver transplantation

### REFERENCE :

WHO, 2004. Data and statistic. (Online [www.who.int/research/](http://www.who.int/research/), accessed March 10, 2013)  
Lipshutz, Gerald S, Hatt, Jonathan, Ghobrial, R Mark et al. 2007. Outcomes of Liver Transplantation in Septuagenarians. Arch Surg/Vol.142 (No.8) Aug. 2007. Amerika: American Medical Association.

Poster Ilmiah HEPAREGS dalam acara 20<sup>th</sup> International Student Congress of  
(bio)Medical Sciences (ISCOMS) di UMCG Belanda



Groningen, The Netherlands  
4<sup>th</sup> - 7<sup>th</sup> June 2013

# Certificate

The organising committee of the 20<sup>th</sup> International Student Congress of  
(bio)Medical Sciences hereby certifies that

**M.V.M. Mahardika**

participated as a presenter at ISCOMS 2013.

*Regenerative therapy innovation for liver cirrhosis by mobilization  
of hematopoietic stem cells as an alternative for transplantation by  
oats (avena sativa L.)*

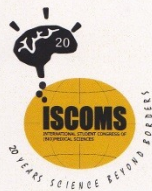
*Poster Session: Gastrointestinal Medicine I*



L. Buddingh  
President ISCOMS 2013



M.D. Filipe  
Scientific Programme ISCOMS 2013



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Sertifikat Presenter Participant dalam acara 20<sup>th</sup> International Student  
Congress of (bio)Medical Sciences (ISCOMS) di UMCG Belanda

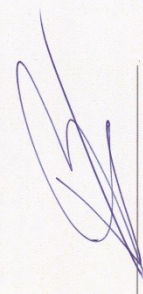

Gronin  
5

# Session Winner

Poster

*Gastrointestinal Medicine I*

**VARDIAN MAHARDIKA**

L.M. Buddingh  
*President ISCOMS 2013*

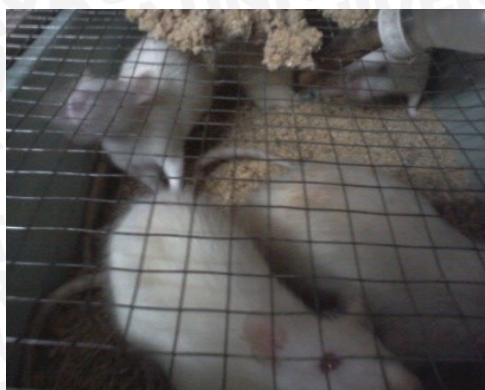
M.D. Filipe  
*Scientific Programme ISCOMS 2013*

*International Student Congress of (bio)Medical Sciences*



Sertifikat Penghargaan *Session Winner* dalam acara 20<sup>th</sup> *International Student Congress of (bio)Medical Sciences*(ISCOMS) di UMCG Belanda





Adaptasi & Kandang Hewan Coba



Pakan Hewan Coba



Penimbangan Berat Badan Hewan Coba



Induksi Sirosis Hepar dengan CCL4 injeksi subkutan



Penimbangan Berat Oats



Pembuatan Larutan Oats



Pembuatan Larutan Oats



Pemberian Larutan Oats dengan Cara Sonde



Persiapan Pembedahan



Pembiusan Hewan Coba



Pembedahan Hewan Coba



Pembedahan Hewan Coba



Pengambilan Darah dan Organ Hepar pada Hewan Coba



Organ Hepar Hewan Coba



Sentrifugasi untuk Mendapatkan Serum Darah





Foto Tim HERPAREGS





Display Poster saat PIMNAS







Foto Tim HERPAREGS

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