



PROGRAMME IMIRT 2012

Vol No 25 Supplement 1 May 2012

THURSDAY 3 MAY

9H00

WELCOMING SPEECH

1st session: New aspects of cell metabolism during IRI

Chairs: Stefan G. Tullius (Boston, USA), Henri Leuvenink (Groningen, The Netherlands)

KEYNOTE LECTURE

Invited speaker: Thierry Hauet (Poitiers, France)

O1-0002

An angiogenic response activated by the unfolded protein response during renal ischemia independently of HIF-1alpha

N. Bouvier, S. Fougeray, E. Thervet, N. Pallet (Paris, France)

O2 – 0014

Upregulation of HIF-1 alpha attenuates hypoxia/reoxygenation injury through HIF-1 alpha -iNOS-PGC-1alpha pathway

Y. Guo, L. Feng, T. Yang, J. Shan, G. Sun, S. Li, Y. Li (Chengdu, China)

O3 – 0076

PKC alpha/beta inhibition attenuates hypoxia induced interstitial renal fibrosis and inflammation via reduced activation of TGF-beta signaling

X. Lu, S. Rong, N. Shushakova, J. Menne, T. Kirsch, H. Haller, F. Güler (Hannover, Germany)

O4 – 0050

Cyclosporin A and Metformin inhibit ischemia-reperfusion injury on INS-1 cells through permeability transition pore inhibition.

S. Lablanche, C. Cottet, F. Lamarche, P-Y. Benhamou, E. Fontaine (Grenoble, France)

O5 – 0015

Transition from reversible to irreversible injury following prolonged myocardial hypothermic preservation. Implication of mitochondrial permeability transition pore (MPTP) opening.

F. Collet, L. Sebbag, J-F. Obadia, M. Ovize, R. Ferrera (Lyon, France)

O6 – 0033

Hypercholesterolemia promotes intrarenal remodeling in a porcine auto-transplanted kidney model.

E. Favreau, N. Chatauret, S. Giraud, W. Hebrard, S. Joffrion, J. Cau, T. Hauet (Poitiers, France)

10H30 – 11H00: BREAK

2nd session: Immunological consequences of IRI

Chairs: Peter Friend (Oxford, UK), Benoit Barron (Paris, France)

KEYNOTE LECTURE

Invited speaker: Stefan G. Tullius (Boston, USA)

“Immunological consequences of ischemia/reperfusion injury”

O7 – 0023

Involvement of IgM natural antibodies in renal ischaemia reperfusion injury: a potential new therapeutic target?

D. Ferenbach, D. Kluth, J. Hughes (Edinburgh, UK)

O8 – 0046

IL-17 producing unconventional Tcells contribute to hepatic ischemia reperfusion injury

E. Eggenhofer, M-H. Dahlke, M. Melter, M. Scherer, H-J. Schlitt, E. K Geissler (Regensburg, Germany)

O9 – 0011

IL-33 exacerbates liver ischemia-reperfusion injury

Z. Ping, X. Li, Y. Lin, D. Lihua, Y. Yan, F. Min, G. Feili, Y. Jun (Yichang City, China)

O10 – 0060

Feasibility of continuous ex vivo kidney perfusion with mesenchymal stem cells to prevent ischemia-reperfusion injury in mice

P. Renner, E. Eggenhofer, F. Popp, E. Geissler, H-J. Schlitt, M-H. Dahlke (Regensburg, Germany)

O11 – 0008

Cultured human MSCs secretome contains anti inflammatory cytokines and reduces in vitro ischemia reperfusion lesions and T lymphocyte proliferation after allogeneic stimulation.

D. Angoulvant, C. Lequeux, L. Denis, M. Abrial, F. Ivanès, V. Dubois, T. Bejan-Angoulvant, R. Ferrera, J. Bienvenu, M. Ovize, L. Sebbag (Tours, France)

O12 – 0059

Involvement of HMGB1 alarmin and IL33/ST2 pathway after ischemia reperfusion in human renal transplantation

A. Thierry, S. Giraud, A. Robin, V. Ametean, F. Bridoux, G. Touchard, A. Herbelin, T. Hauet, J-M. Gombert (Poitiers, France)

12H30 – 13H00: LUNCH

13H15 – 14H15: SYMPOSIUM ORS

14H30

3rd session: New trends for additives to preservation solutions

Chairs: Thierry Hauet (Poitiers France), Dirk Van Raemdonk (Leuven, Belgium)

KEYNOTE LECTURE

Invited speaker: Raphael Thuillier (Poitiers, France)

“New trends for additives to preservation solutions”

O13 – 0032

Kidney preservation with cardiotrophin-1 prevents ischemia/reperfusion injury and inflammatory response in a syngeneic rat kidney transplant model.

M-B. García-Cenador, J-M. López-Novoa, M-P. de Obanos, J. Ruiz, J-R. Sanz-Gimenez-Rico, J-F. López Marcos, F-J. García-Criado (Salamanca, Spain)

O14 – 0074

Superior lung preservation with a polyethylene glycol based solution in a porcine single lung transplant model

A. Olland, A. Neyrinck, M. Benahmed, T. Boogmans, A. Stanzi, K. Elbayed, S. Wauters, G. Verleden, I. Namer, D. Van Raemdonck (Leuven, Belgium)

O15 – 0013

Intraluminal polyethylene glycol stabilizes the tight junctions and improves intestinal preservation in the rat

M. Oltean, E. Björkman, A. Casselbrand, M. Joshi, M. Olausson (Gothenburg, Sweden)

O16 – 0031

Impact of preservation solution on grafts and postoperative organ failures following liver transplantation.

H. Brisson, C. Arbelot, C. Vezinet, Q. Lu, D. Eyraud, E. Savier, C. Parizot, J-C. Vaillant, L. Hannoun, G. Gorochov, J-J. Rouby (Paris, France)

O17 – 0037

Potential benefits of the supplementation of machine perfusion solution with Arenicola Marina hemoglobin for the preservation of porcine kidney grafts subjected to warm ischemia.

P.-O. Delpech, N. Chatauret, W. Hébrard, S. Joffrion, D. Dutheil, F. Zal, T. Hauet (Poitiers, France)

O18 – 0064

The novel mitochondria-targeted antioxidant MitoQ ameliorates renal ischaemia reperfusion injury in a murine model

A. Dare, T. Prime, A. Logan, E. Bolton, J-A. Bradley, K. Saeb-Parsy, M. Murphy (Cambridge, UK)

16H00 – 16H30: BREAK

4th session: Machine perfusion: Why and How?

Chairs: Ina Jochmans (Leuven, Belgium), Lionel Badet (Lyon, France)

KEYNOTE LECTURE

Invited speaker: Henri Leuvenink (Groningen, The Netherlands) “Machine perfusion, current status and future directions”

O19 – 0041

One-year transplantation results of kidneys preserved by machine perfusion – LifePort Kidney Transporter versus Waters RM3 - Prospective study

M. Wszola, P. Domagala, P. Diuwe, A. Kwiatkowski, L. Gorski, R. Kieszek, A. Berman, A. Perkowska-Ptasinska, M. Durlik, L. Paczek, A. Chmura (Warsaw, Poland)

O20 – 0044

Coating of the vessel wall with macromolecular heparin during cold machine perfusion

A. Sedigh, R. Larsson, G. Tuvfeson, T. Lorant (Uppsala, Sweden)

O21 – 0030

Pneumatic control and monitoring for kidney perfusion in a NMR compatible system

R. Ruttimann, F. Lazeyras, A. Nastasi, L. Buhler, P. Morel, J-B. Buchs (Geneva, Switzerland)

O22 – 0040

The final showdown: Preclinical comparison between perfusion machines ORS Lifeport and waters RM3

R. Coudas, R. Thuillier, P-O. Delpech, B. Barrou, L. Badet, T. Hauet (Poitiers, France)

17H45 – 18H45: POSTER SESSION

New aspects of cell metabolism during IRI / Immunological consequences of IRI

New trends for additives to preservation solutions / Machine perfusion: Why and How?

Management of brain dead donors / Donors after cardiocirculatory death

Organ Ex vivo repair/Pre/Post Conditioning

FRIDAY 4 MAY

8H30

5th session: Management of brain dead donors

Chairs: Constantino Fondevila (Barcelona, Spain), René Robert (Poitiers, France)

KEYNOTE LECTURE

Invited speaker: Rutger Ploeg (Oxford, UK) “The success of transplantation begins before donation”

O23 – 0029

Secretory Leukocyte Protease Inhibitor Decreases Renal Ischemia Reperfusion Injury

D. Guerrieri, N. Ambrosi, H. Romeo, F. Cicora, F. Toniolo, P. Cicora, C. Incardona, E. Chuluyan (Buenos Aires, Argentina)

O24 – 0066

Donor pretreatment with methylprednisolone reduces brain-death induced renal injury before organ retrieval
P. Ottens, J. Damman, B. Liu, M. Seelen, H. Van Goor, S. Veldhuis, R. Ploeg, H. Leuvenink (Groningen, The Netherlands)

O25 – 0069

Angiopoietin in living and deceased brain dead kidney donors
W-H. Westendorp, L-G. Koudstaal, J. Damman, J.G. Burgerhof, M-A. Seelen, H. Van Goor, R-J. Ploeg, H-G. Leuvenink (Groningen, The Netherlands)

O26 – 0061

Effect of preconditioning with triiodothyronine on renal ischemia-reperfusion injury
C. Ferreyra Lanatta, R. Pérez Abud, F. ÓValle, J-M. Osorio, F. Vargas, I. Rodriguez, A. Osuna (Granada, Spain)

O27 – 0017

Diazoxide attenuates ischemia/reperfusion injury via upregulation of heme oxygenase-1 after liver transplantation in rats
H.F. Huang, Z. Zeng, F. He, MQ. Chen (Kunming, China)

O28 – 0007

Effects of anaesthetic preconditioning plus postconditioning with sevoflurane in warm liver ischemia/reperfusion injury in rats
J. Avancini Rocha Filho, E.R. Ramos Figueira, B. Beck Schimmer, V. Oliveira Andre, M. Felipe de Souza Buto, M. Nakatani, F.J. Gonçalves Prado, M.J. Carvalho Carmona, P-A. Clavien, L.A. Carneiro D'Albuquerque (Sao Paulo, Brazil)

O29 – 0047

Protective effects of remote and classical post-conditioning on ischemia/reperfusion-induced acute kidney injury
M. Kadkhodae, A. Najafi, B. Seifi (Tehran, Iran)

6th session: Donors after cardiocirculatory death

Chairs: Rutger Ploeg (Oxford, UK), Diethard Monbaliu (Leuven, Belgium)

KEYNOTE LECTURE

Management of uncontrolled DCD:

Invited speakers: Benoît Barrou (kidney)(Paris, France), “How to perfuse the organs of uncontrolled DCDs: is the normothermic ECMO worth the complexity?”

Constantino Fondevila (liver)(Barcelona, Spain) “Liver transplantation from uncontrolled DCD donors”

10H35 – 11H05; BREAK

“Organ transplantation from controlled DCD donors: donor management, outcome and pitfalls”

Management of controlled DCD: Invited speaker: Diethard Monbaliu (Leuven, Belgium)

O30 – 0021

Randomised controlled trial of the effects of hydrogen sulphide in renal ischaemia reperfusion injury.
J. P. Hunter, S. A. Hosgood, M. Patel, M. L. Nicholson (Leicester, UK)

O31 – 0027

Non-heart-beating donors: preliminary study on an isolated perfused swine heart harvested after 20 minutes of normothermic ischemia
A. Piccardo, M. Desrois, E. Zogheib, C. Dalmasso, C. Lan, D. Fourré, M. Bernard, T. Caus (Amiens, France)

O32 – 0056

Cardiac Tolerance to Warm, Global Ischemia is improved with Mild Hypothermia Following Ischemic Arrest
M. Stadelmann, M. Dornbierer, D. Clément, B. Gahl, F. Dick, T. Carrel, H. Tevæarai, S. Longnus (Berne, Switzerland)

O33 – 0071

Outcome after liver transplantation using controlled donation after cardiac death donors: A single-center experience
N. Meurisse, S. Vanden Bussche, I. Jochmans, V. Heedfeld, J. Francois, B. Desschans, G. Van Helleputte, N. Grossen, D. Claes, J. De Roey, S. Dirix, R. Aerts, W. Laleman, S. Van der merwe, C. Verslype, D. Cassiman, W. Vansteenbergen, F. Nevens, J. Pirenne, D. Monbaliu (Leuven, Belgium)

O34 – 0024

Kidney Graft Quality after Donation from Uncontrolled Deceased Donors After Cardiac Arrest

R.Codas, W. Hanf, V. Meas-Yedid, B. Mac-Gregor, J. Berthiller, A. Hadj-Aissa, L. Badet, E. Morelon (Lyon, France)

O35 – 0078

Impact of delayed graft function on kidney graft survival in recipient with graft coming from donation after cardiocirculatory death

R.Thuret, C. Billault, F. Thibault, E. Vanglabekke, K. Fehri, S. Bart, N. Arzouk, V. Gueutin, S. Hacini, S. Ourahma, M.O. Bitker, B. Barrou (Paris, France)

O36 – 0054

New model of kidney donation from uncontrolled donors

O.Reznik, A. Scvortcov, A. Reznik, S. Bagnenko (St Petersburg, Russia)

O37 – 0070

Kidney donation after circulatory death has not increased kidney transplant activity in Belgium - a comparative analysis with the Netherlands between 1995-2010

L.Jochmans, D. Monbaliu, A. Rahmel, J. Pirenne (Leuven, Belgium)

12H45 – 14H15: LUNCH

7th session: Organ Ex vivo repair

Chairs: René Ferrera (Lyon, France), David Talbot (Newcastle, UK)

KEYNOTE LECTURE

**Invited speakers: Dirk Van Raemdonck (lungs)(Leuven, Belgium), “Ex vivo lung perfusion: Clinical applications”
Peter Friend (liver)(Oxford, UK)**

O38 – 0036

Tissue engineering for ex vivo repair of ischemically damaged tubule epithelium

L.Brasile, P. Glowacki, B. Stubenitsky (New-York, USA)

O39 – 0019

The first clinical series of normothermic perfusion in marginal donor kidney transplantation

S. A Hosgood, M. L Nicholson (Leicester, UK)

O40 – 0020

The biological effects of normothermic kidney perfusion on ischaemia reperfusion injury

S. A Hosgood, T. Richards, M. Patel, M. L Nicholson (Leicester, UK)

O41 – 0035

Potential for ex vivo renal repair

L.Brasile, P. Glowacki, B. Stubenitsky (New-York, USA)

CLOSURE ADDRESS

END OF CONGRESS 16H15

POSTERS

New aspects of cell metabolism during IRI

P1 – 0026

MicroRNA-21 up-regulate HIF-1 alpha expression in hepatocytes during ischemia injury by targeting PTEN

J. Shan, H. Li, G. Sun, W. Wu, S. Li, D. Long, Y. Li, L.Feng (Chengdu, China)

P2 – 0045

Downregulation of miR-20a decreases HIF-1 alpha and accelerates apoptosis in hypoxia

G. Sun, L.Feng, J. Shan, Y. Guo, T. Yang, S. Li, Y. Li (Chengdu, China)

P3 – 0077

Renal PKC epsilon deficiency attenuates ischemia reperfusion injury via impaired neutrophil infiltration and TNF alpha dependent apoptosis inhibition

S. Rong, T. Kirsch, N. Shushakova, J. Menne, M. Leitges, H. Haller, F. Güler (Hannover, Germany)

P4 – 0043

Effects of hepatic reperfusion injury on the gene expression of some cytochrome P450 isoforms in rat liver

H. Ali Arab, J. Jamshidian, G. Nikbakht, F. Sasani, A. Afkhami (Tehran, Iran)

P5 – 0025

OAT1/3 and renal ischemia and reperfusion: Evidence for a role of proximal tubular transporter expression on renal outcome.

R. Schneider, M. Meusel, C. Held, C. Wanner, M. Gekle, C. Sauvant (Halle, Germany)

P6 – 0009

Cannabidiol treatment ameliorates ischemia/reperfusion renal injury in rats

A. Fouad, A. Al-Mulhim, I. Jresat (Saudi, Arabia)

P7 – 0010

Effect of methylene blue on the hemodynamic instability resulting from liver ischemia and reperfusion in rabbits

R. Rosique, M. Rosique, I. Rosique, L. Tirapelli, P. Évora (Sao Paulo, Brazil)

P8 – 0057

Best temperature for static liver graft storage is 1°C an experimental study

C. Charrueau, N. Neveux, J-C. Chaumeil, L. Hannoun, L. Cynober, E. Savier (Paris, France)

P9 – 0001

Atp and other adenine nucleotide precursors measured in kidneys from DCD by 31p NMR spectroscopy, during hypothermic-oxygenated-pulsatile perfusion, to evaluate their viability

J-B. Buchs, F. Lazeyras, L. Buehler, S. Moll, R. Ruttimann, A. Nastasi, P. Morel (Geneva, Switzerland)

Immunological consequences of IRI

P10 – 0016

Increased inflammation caused by hyperoxaluria leads to larger renal dysfunction in an experimental model of ischemia and reperfusion

R. Silva, M. Costa, M. Hiyane, M. Cenedeze, H. Pinheiro, N. Camara, A. Pacheco-Silva (Sao Paulo, Brazil)

P11 – 0034

Anti-rat anti-thymocyte globulin attenuates renal ischaemia-reperfusion injury in rats

P. Nesarigkar, G. Chavez, B. Spiller, R. Chavez (Cardiff, UK)

P12 – 0053

Comparison of Long Term effect of Thymoglobulin Treatment in Patients with High Risk of Delayed Graft Function

L. Requião-Moura, E. Ferraz, A. Cristina Matos, E. Tonato, M. Durão, N. Camara, A. Pacheco-Silva (Sao Paulo, Brazil)

Additives to Preservations Solutions

P13 – 0075

Comparative study between Scot-15® and Perfadex® as lung preservation solutions

A. Olland, C. Meers, M. Benahmed, K. Elbayed, S. Wauters, E. Verbeke, G. Verleden, I. Namer, D. Van Raemdonck (Leuven, Belgium)

P14 – 0068

Naked Caspase-3 siRNA Is Effective in Cold Preservation, but not in Auto-transplantation of Porcine Kidneys

C. Yang, Y. Jia, T. Zhao, Y. Xue, Z. Zhao, J. Zhang, J. Wang, X. Wang, Y. Qiu, M. Lin, D. Zhu, G. Qi, Y. Qiu, Q. Tang, R. Rong, M. Xu, S. Ni, M. Nicholson, T. Zhu, B. Yang (Leicester, UK)

P15 – 0055

Organ preservation revisited: anticoagulation rescues borderline kidney grafts

S. Tillet, S. Giraud, R. Thuillier, W. Hebrard, M. Petitou, T. Hauet (Poitiers, France)

P16 – 0039

Effect of Cardioprotectin-1 on the tissue injury associate to cold ischemia and preservation of the heart and lung.

L. Yaremi Quirós, R. Núñez Lozano, P. D Sánchez González, M.B. García Cenador, M.P. Pérez de Obanos, J. Ruiz, F.J. García Criado, J.M. López Novoa (Salamanca, Spain)

P17 – 0042

Preliminary study of amniotic fluid stems cell therapy in kidney transplantation

E. Baulier, F. Favreau, D. Bon, S. Giraud, S. Joffrion, A. Le Corf, M-L. Bonnet, W. Hebrard, A. Turhan, T. Hauet (Poitiers, France)

P18 – 0048

A pilot, randomised, double blind, placebo-controlled, parallel groups, clinical trial to investigate the efficacy and safety of cardioprotectin-1 (CT-1) in kidney transplantation

J. Ruiz, M.M. Municio, O. Isidoro (Madrid, Spain)

Machine Perfusion

P19 – 0073

Analysis of preservation solution (KPS and UW) with High Resolution Nuclear Magnetic Resonance Spectroscopy during cold preservation: comparison of metabolite content during cold ischemia with machine perfusion and static storage.

D. Bon, P-O. Delpech, T. Khalifeh, N. Boildieu, W. Hébrard, F. Seguin, T. Hauet (Poitiers, France)

P20 – 0052

Hypothermic machine perfusion of human liver grafts: Comparison of single VS dual vessels perfusion.

A. Jomaa, K. Gurusamy, P. Siriwardana, A. Winstanley, I. Claworth, H. Parkes, P. De Muylder, B. Fuller, B. Davidson (London, UK)

Brain dead donors

P21 – 0018

MnTMPyP, a selective superoxide dismutase mimetic, reduces oxidative stress in brain dead donors

D. Hoeksma, L. Van Dulleman, P. Ottens, S. Veldhuis, R. Ploeg, H. Leuvenink (Groningen, The Netherlands)

P22 – 0049

Role of biochemical- and histological-based scores for the prediction of graft failure after liver transplantation

G.B. Levi Sandri, Q. Lai, F. Melandro, N. Guglielmo, A. Molinaro, S. Ginanni Corradini, M. Rossi (Roma, Italy)

Donors after Cardiocirculatory Death

P23 – 0022

Early Urinary Biomarkers of warm and cold ischaemic injury in an experimental kidney model

S. A. Hosgood, J. P Hunter, M. L Nicholson (Leicester, UK)

P24 – 0058

Evaluation of cardiac grafts from non-heart-beating donors : Early reperfusion hemodynamic parameters predict contractile recovery in isolated rat hearts

M. Dornbierer, M. Stadelmann, J. Sourdon, B. Gahl, S. Cook, T. Carrel, H. Tevaearai, S. Longnus (Berne, Switzerland)

P25 – 0038

Dual kidney transplantation from uncontrolled deceased donors after cardiac arrest (uDDCA)

R. Codas, W. Hanf, B. Mac Gregor, V. Meas Yedid, A. Hadj Aissa, J. Berthiller, G. Perrat, F. Buron, F. Mraiaigh, C. Chauvet, P. Petruzzo, E. Morelon, L. Badet (Lyon, France)

P26 – 0065

Prolonged cold ischaemia potentiates the mitochondrial damage that occurs during warm ischaemia in rat kidneys

A. Dare, T. Prime, K. Saeb-Parsy, M. Murphy (Cambridge, UK)

P27 – 0005

Hemodynamic study of the portal venous system in a model of warm liver ischemia/reperfusion injury in rats

M.F. de Souza Buto, E.R. Ramos Figueira, J. Avancini Rocha Filho, M. Nakatani, E. Ryoiti Tatebe, V. Oliveira Andre, A. Rodrigues de Carvalho Martins, R. Jureidini, M.J. Carvalho Carmona, T. Bacchella, E. Chaib, I. Ceconello, L.A. Carneiro D'Albuquerque (Sao Paulo, Brazil)

P28 – 0004

Metabolic changes in a model of warm liver ischemia/reperfusion injury in rats

E. Ryoiti Tatebe, E.R. Ramos Figueira, J. Avancini Rocha Filho, V. Oliveira Andre, M. Nakatani, M.F. de Souza Buto, R. Jureidini, W. Andraus, T. Bacchella, E. Chaib, I. Ceconello, L.A. Carneiro D'Albuquerque (Sao Paulo, Brazil)

Organ Ex Vivo Repair

P29 – 0067

Biomarkers assessing warm ischaemic injury using an isolated porcine kidney haemoreperfusion model

B. Yang, S. Hosgood, Z. Da, S. Harper, H. Waller, M. Kay, P. Furness, M. Nicholson (Leicester, UK)

P30 – 0051

BacMam; a novel gene delivery vector for ischaemia

E. Locanto, R. B. Hitchman, L. A. King (Oxford, UK)

P31 – 0062

Ex-vivo normothermic oxygenated perfusion of the liver : a study to identify the ideal perfusate in a donor after cardiac death (DCD) porcine model.

A. Nassar, G. D'Amico, P. Grady, M. Otto, K. Dymna, X. Zhu, J. Fung, C. Miller, C. Quintini (Cleveland, USA)

Pre/Post Conditioning

P32 – 0006

Effects of anaesthetic preconditioning with sevoflurane in warm liver ischemia/reperfusion injury in rats

E.R. Ramos Figueira, J. Avancini Rocha Filho, B. Beck Schimmer, M. Nakatani, E. Ryoiti Tatebe, V. Oliveira Andre, F.J. Gonçalves Prado, M.J. Carvalho Carmona, P-A. Clavien, L. Augusto Carneiro D'Albuquerque (Sao Paulo, Brazil)

P33 – 0028

Ozone preconditioning in renal ischaemia-reperfusion model. Functional and morphological evidences

A. Fernández Iglesias, L. González Núñez, S. Rodriguez Salgueiro, J.L. Calunga Fernández, E. Santos Febles (La Habana, Cuba)

P34 – 0063

Intermittent Selective Clamping enhances liver tolerance to Ischemia/Reperfusion: a powerful protective modality in the field of living-related liver transplantation

I. Benmosbah, A. Corlu, H. Duval, S. Grandadam, C. Ribault, K. Boudjema, F. Morel, P. Compagnon (Rennes, France)

P35 – 0012

The early protective effect of Ischemia preconditioning and glutamine pretreatment in renal ischemia-reperfusion injury of rat

I. Sung Moon, J. Kye Hwang, J. Il Kim (Seoul, Republic of Korea)