



Detlef Obal

Assistant Professor of Anesthesiology, Perioperative and Pain Medicine (Adult MSD)
at the Stanford University Medical Center

 NIH Biosketch available Online

CLINICAL OFFICES

- **Anesthesia Department**

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Bio

CLINICAL FOCUS

- Anesthesia

ACADEMIC APPOINTMENTS

- Assistant Professor - Med Center Line, Anesthesiology, Perioperative and Pain Medicine
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Assistant Editor, Anesthesia & Analgesia, (2019- present)

HONORS AND AWARDS

- Dean's Citation Award, University of Louisville (2014)
- Diplomate of the European Society of Anesthesiology (DESA), European Society of Anesthesiology (2005)
- Euroanesthesia 2003 Best Abstract Prize, European Society of Anesthesiology (2003)
- Doctoral Thesis, "Doctor of Medicine", University of Duesseldorf, Germany (1999)

PROFESSIONAL EDUCATION

- PhD, University of Louisville , Physiology and Biophysics (2014)
- Fellowship: University of Dusseldorf (2005) Germany
- Board Certification, German Board of Anesthesiology and Intensive Care Medicine , Anesthesiology and Perioperative Care (2004)
- Residency: University of Dusseldorf (2004) Germany
- Medical Education: University of Dusseldorf (2000) Germany

LINKS

- LinkedIn: <https://www.linkedin.com/in/detlef-obal-a5a29465/>
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- publons: <https://publons.com/researcher/2873953/detlef-obal-md-desa/>
- ResearchGate: https://www.researchgate.net/profile/Detlef_Obal

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am primarily working at the Cardiovascular Institute (Director Joseph Wu, MD, PhD), studying the effect of different anesthetics on human induced pluripotent stem cells (hiPSC). Considering the current opioid epidemic, I am currently focusing on the effect of chronic opioid exposure on endothelial and cardiac function.

CLINICAL TRIALS

- EcoAnaesthesia Facemask Versus Standard Facemask During Anesthesia Induction, Not Recruiting
- The ENIGMA II Trial: Nitrous Oxide Anaesthesia and Cardiac Morbidity After Major Surgery: a Randomised Controlled Trial, Not Recruiting
- Use of New Supraglottic Airway Devices in Severely Obese Patients: A Feasibility Study, Not Recruiting

Professional

PROFESSIONAL INTERESTS

As a translational scientist, I am interested in combining clinical data with patient specific characteristics to optimize anesthesia care. With the advantages in human genetics and tools like human inducible stem cells, I am trying to understand patients' specific needs and reactions to anesthetics, so that we will be able to provide individualized anesthesia care in the future.

WORK EXPERIENCE

- Assistant Professor - Department of Anesthesiology and Perioperative Medicine, University of Louisville (2/1/2006 - 8/15/2018)
- Staff Anesthesiologist - Department of Anesthesiology, Heinrich-Heine University Duesseldorf (5/1/2004 - 2/1/2006)

Publications

PUBLICATIONS

- **A Guide to Understanding "State-of-the-Art" Basic Research Techniques in Anesthesiology.** *Anesthesia and analgesia*
Obal, D., Wu, S., McKinstry-Wu, A., Tawfik, V. L.
2020
- **The obesity paradox: does it exist in the perioperative period?** *International anesthesiology clinics*
Obal, D., Wadhwa, A.
2020
- **Perioperative analgesic administration during the 2018 parenteral opioid shortage in the United States - A retrospective analysis.** *Journal of clinical anesthesia*
Kim, R. K., Gao, Z., Hastie, T., Obal, D.
2020; 66: 109892
- **Is Fresh Frozen Plasma Still Necessary for Management of Acute Traumatic Coagulopathy?** *Current Anesthesiology Reports*
Giles, N. R., Obal, D.
2020
- **Induced Pluripotent Stem Cells as a Platform to Understand Patient-Specific Responses to Opioids and Anaesthetics.** *British journal of pharmacology*
Obal, D., Wu, J. C.

2020

- **Cardiospecific Overexpression of ATPGD1 (Carnosine Synthase) Increases Histidine Dipeptide Levels and Prevents Myocardial Ischemia Reperfusion Injury.** *Journal of the American Heart Association*
Zhao, J., Conklin, D. J., Guo, Y., Zhang, X., Obal, D., Guo, L., Jagatheesan, G., Katragadda, K., He, L., Yin, X., Prodhan, M. A., Shah, J., Hoetker, et al
2020: e015222
- **Studying Cardiovascular Effects of Marijuana on Healthy Individuals Using Human Derived Induced Pluripotent Stem Cells**
Wei, T., Chandy, M., Chen, I. Y., Wo, H., Khanamiri, S., Nishiga, M., Seidl, F., Sayed, N., Liu, C., Rhee, J., Obal, D., Chour, T., Wu, et al
LIPPINCOTT WILLIAMS & WILKINS.2019
- **Transient Receptor Potential Ankyrin-1 (TRPA1) Channel Contributes to Myocardial Ischemia-Reperfusion Injury.** *American journal of physiology. Heart and circulatory physiology*
Conklin, D. J., Guo, Y., Jagatheesan, G., Nystoriak, M. A., Obal, D., Kilfoil, P., Guo, L., Hoetker, J. D., Bolli, R., Bhatnagar, A.
2019
- **NASO-PHARYNGEAL VENTILATION AS AN ALTERNATIVE TO MASK VENTILATION DURING PRE-OXYGENATION**
Businger, J., Obal, D., Akca, O., Lenhardt, R.
LIPPINCOTT WILLIAMS & WILKINS.2018: 14
- **Implication of Major Adverse Postoperative Events and Myocardial Injury on Disability and Survival: A Planned Subanalysis of the ENIGMA-II Trial.** *Anesthesia and analgesia*
Beattie, W. S., Wijesundera, D. N., Chan, M. T., Peyton, P. J., Leslie, K., Paech, M. J., Sessler, D. I., Wallace, S., Myles, P. S., Gallagher, W., Farrington, C., Ditoro, A., Baulch, et al
2018
- **Exercise-Induced Changes in Glucose Metabolism Promote Physiologic Cardiac Growth.** *Circulation*
Gibb, A. A., Epstein, P. N., Uchida, S., Zheng, Y., McNally, L. A., Obal, D., Katragadda, K., Trainor, P. J., Conklin, D. J., Brittan, K. R., Tseng, M. T., Wang, J., Jones, et al
2017
- **Red Cell Storage Duration Does Not Affect Outcome after Massive Blood Transfusion in Trauma and Nontrauma Patients: A Retrospective Analysis of 305 Patients** *BIOMED RESEARCH INTERNATIONAL*
Bautista, A., Wright, T. B., Meany, J., Kandadai, S. K., Brown, B., Khalafalla, K., Hashem, S., Smith, J. W., Ayyoubi, T. M., Dalton, J. E., Wadhwa, A., Sessler, D. I., Obal, et al
2017: 3718615
- **Intraoperative dexamethasone does not increase the risk of postoperative wound infection: a propensity score-matched post hoc analysis of the ENIGMA-II trial (EnDEX).** *British journal of anaesthesia*
Corcoran, T., Kasza, J., Short, T. G., O'Loughlin, E., Chan, M. T., Leslie, K., Forbes, A., Paech, M., Myles, P.
2017; 118 (2): 190–99
- **Genetic Deficiency of Glutathione S-Transferase P Increases Myocardial Sensitivity to Ischemia-Reperfusion Injury** *CIRCULATION RESEARCH*
Conklin, D. J., Guo, Y., Jagatheesan, G., Kilfoil, P. J., Habertzell, P., Hill, B. G., Baba, S. P., Guo, L., Wetzelberger, K., Obal, D., Rokosh, D., Prough, R. A., Prabhu, et al
2015; 117 (5): 437–49
- **Perioperative Doses of Ondansetron or Dolasetron Do Not Lengthen the QT Interval** *MAYO CLINIC PROCEEDINGS*
Obal, D., Yang, D., Sessler, D. I.
2014; 89 (1): 69–80
- **The safety of addition of nitrous oxide to general anaesthesia in at-risk patients having major non-cardiac surgery (ENIGMA-II): a randomised, single-blind trial.** *Lancet (London, England)*
Myles, P. S., Leslie, K., Chan, M. T., Forbes, A., Peyton, P. J., Paech, M. J., Beattie, W. S., Sessler, D. I., Devereaux, P. J., Silbert, B., Schricker, T., Wallace, S.
2014; 384 (9952): 1446–54
- **Cardiac myocyte-specific transgenic ecSOD targets mitochondria to protect against Ca²⁺ induced permeability transition** *FRONTIERS IN PHYSIOLOGY*
Luo, J., Obal, D., Dimova, N., Tang, X., Rokosh, G.
2013; 4: 295
- **Cardiomyocyte-restricted overexpression of extracellular superoxide dismutase increases nitric oxide bioavailability and reduces infarct size after ischemia/reperfusion** *BASIC RESEARCH IN CARDIOLOGY*

- Obal, D., Dai, S., Keith, R., Dimova, N., Kingery, J., Zheng, Y., Zweier, J., Velayutham, M., Prabhu, S. D., Li, Q., Conklin, D., Yang, D., Bhatnagar, et al
2012; 107 (6): 305
- **Ultrasound Guidance for Deep Peripheral Nerve Blocks: A Brief Review** *ANESTHESIOLOGY RESEARCH AND PRACTICE*
Wadhwa, A., Kandadai, S., Tongpresert, S., Obal, D., Gebhard, R.
2011; 262070
 - **The Effect of Aminophylline on Loss of Consciousness, Bispectral Index, Propofol Requirement, and Minimum Alveolar Concentration of Desflurane in Volunteers** *ANESTHESIA AND ANALGESIA*
Turan, A., Kasuya, Y., Govinda, R., Obal, D., Rauch, S., Dalton, J. E., Akca, O., Sessler, D. I.
2010; 110 (2): 449–54
 - **Cardiac Myocyte-Specific Expression of Inducible Nitric Oxide Synthase Protects Against Ischemia/Reperfusion Injury by Preventing Mitochondrial Permeability Transition** *CIRCULATION*
West, M. B., Rokosh, G., Obal, D., Velayutham, M., Xuan, Y., Hill, B. G., Keith, R. J., Schrader, J., Guo, Y., Conklin, D. J., Prabhu, S. D., Zweier, J. L., Bolli, et al
2008; 118 (19): 1970–78
 - **Effect of sevoflurane preconditioning on ischaemia/reperfusion injury in the rat kidney in vivo.** *European journal of anaesthesiology*
Obal, D., Dettwiler, S., Favoccia, C., Rascher, K., Preckel, B., Schlack, W.
2006; 23 (4): 319–26
 - **Post-conditioning by a short administration of desflurane reduced renal reperfusion injury after differing of ischaemia times in rats.** *British journal of anaesthesia*
Obal, D., Rascher, K., Favoccia, C., Dettwiler, S., Schlack, W.
2006; 97 (6): 783–91
 - **Effects of halothane, sevoflurane and desflurane on the force-frequency relation in the dog heart in vivo.** *Canadian journal of anaesthesia = Journal canadien d'anesthésie*
Preckel, B., Obal, D., Möllenheim, J., Hennes, J., Heiderhoff, M., Thämer, V., Schlack, W.
2006; 53 (11): 1118
 - **The noble gas xenon induces pharmacological preconditioning in the rat heart in vivo via induction of PKC-epsilon and p38 MAPK.** *British journal of pharmacology*
Weber, N. C., Toma, O., Wolter, J. I., Obal, D., Müllenheim, J., Preckel, B., Schlack, W.
2005; 144 (1): 123–32
 - **The influence of mitochondrial KATP-channels in the cardioprotection of preconditioning and postconditioning by sevoflurane in the rat in vivo.** *Anesthesia and analgesia*
Obal, D., Dettwiler, S., Favoccia, C., Scharbatke, H., Preckel, B., Schlack, W.
2005; 101 (5): 1252–60
 - **Morphine induces late cardioprotection in rat hearts in vivo: the involvement of opioid receptors and nuclear transcription factor kappaB.** *Anesthesia and analgesia*
Frässdorf, J., Weber, N. C., Obal, D., Toma, O., Müllenheim, J., Kojda, G., Preckel, B., Schlack, W.
2005; 101 (4): 934–41, table of contents
 - **Partial liquid ventilation in acute salt water-induced lung injury.** *European journal of anaesthesiology*
Schober, P., Seidel, D., Kalb, R., Obal, D., Pakulla, M. A., Loer, S. A.
2005; 22 (7): 536–40
 - **Coronary artery angioplasty for treatment of peri-operative myocardial ischaemia.** *Anaesthesia*
Obal, D., Kindgen-Milles, D., Schoebel, F., Schlack, W.
2005; 60 (2): 194–97
 - **Role of protein kinase C-epsilon (PKCepsilon) in isoflurane-induced cardioprotection.** *British journal of anaesthesia*
Obal, D., Weber, N. C., Zacharowski, K., Toma, O., Dettwiler, S., Wolter, J. I., Kratz, M., Müllenheim, J., Preckel, B., Schlack, W.
2005; 94 (2): 166–73
 - **Continuous intra-arterial blood gas monitoring in rats.** *Laboratory animals*
Pakulla, M. A., Obal, D., Loer, S. A.
2004; 38 (2): 133–37

- **Desflurane preconditioning induces time-dependent activation of protein kinase C epsilon and extracellular signal-regulated kinase 1 and 2 in the rat heart in vivo.** *Anesthesiology*
Toma, O., Weber, N. C., Wolter, J. I., Obal, D., Preckel, B., Schlack, W.
2004; 101 (6): 1372–80
- **Effect of lidocaine on ischaemic preconditioning in isolated rat heart.** *British journal of anaesthesia*
Barthel, H., Ebel, D., Müllenheim, J., Obal, D., Preckel, B., Schlack, W.
2004; 93 (5): 698–704
- **Hydrochloric acid-induced lung injury: effects of early partial liquid ventilation on survival rate, gas exchange, and pulmonary neutrophil accumulation.** *Intensive care medicine*
Pakulla, M. A., Seidel, D., Obal, D., Loer, S. A.
2004; 30 (11): 2110–19
- **Haemodynamic changes during halothane, sevoflurane and desflurane anaesthesia in dogs before and after the induction of severe heart failure.** *European journal of anaesthesiology*
Preckel, B., Müllenheim, J., Hoff, J., Obal, D., Heiderhoff, M., Thämer, V., Schlack, W.
2004; 21 (10): 797–806
- **Cardioprotection against reperfusion injury is maximal with only two minutes of sevoflurane administration in rats.** *Canadian journal of anaesthesia = Journal canadien d'anesthésie*
Obal, D., Scharbatke, H., Barthel, H., Preckel, B., Müllenheim, J., Schlack, W.
2003; 50 (9): 940–45
- **One MAC of sevoflurane provides protection against reperfusion injury in the rat heart in vivo.** *British journal of anaesthesia*
Obal, D., Preckel, B., Scharbatke, H., Müllenheim, J., Höterkes, F., Thämer, V., Schlack, W.
2001; 87 (6): 905–11
- **Influence of the angiotensin II AT1 receptor antagonist irbesartan on ischemia/reperfusion injury in the dog heart.** *Basic research in cardiology*
Preckel, B., Schlack, W., González, M., Obal, D., Barthel, H., Thämer, V.
2000; 95 (5): 404–12
- **Left stellate ganglion block has only small effects on left ventricular function in awake dogs before and after induction of heart failure.** *Anesthesia and analgesia*
Müllenheim, J., Preckel, B., Obal, D., Heiderhoff, M., Hoff, J., Thämer, V., Schlack, W.
2000; 91 (4): 787–92
- **Effect of acidotic blood reperfusion on reperfusion injury after coronary artery occlusion in the dog heart.** *Journal of cardiovascular pharmacology*
Preckel, B., Schlack, W., Obal, D., Barthel, H., Ebel, D., Grunert, S., Thämer, V.
1998; 31 (2): 179–86
- **Effects of enflurane, isoflurane, sevoflurane and desflurane on reperfusion injury after regional myocardial ischaemia in the rabbit heart in vivo.** *British journal of anaesthesia*
Preckel, B., Schlack, W., Comfère, T., Obal, D., Barthel, H., Thämer, V.
1998; 81 (6): 905–12
- **Halothane reduces reperfusion injury after regional ischaemia in the rabbit heart in vivo.** *British journal of anaesthesia*
Schlack, W., Preckel, B., Barthel, H., Obal, D., Thämer, V.
1997; 79 (1): 88–96