

Curriculum vitae

Schwarz Christoph, MD, PhD



PERSONAL INFORMATIONS

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Institutional address: Dept. of Surgery, Div. of General- Vascular and Transplantsurgery
Medical University Vienna
Währinger Gürtel 18-20
1090 Vienna, Austria
P: 0043(0)1/40400/56210
Date of birth: 22/09/1985
Citizenship: Austria
Languages: German, English, French

EDUCATION

1992-1996 Primary school in Linz
1996-2004 High school: *Khevenhüllergymnasium*, Linz (diploma in 2004)
2004-2009 *Medical University Vienna*, Austria
2009-2010 *Graduate School of Medicine*, Nagoya, Japan
2010 Medical degree, *Medical University Vienna*, Austria
2017 PhD Degree (N094), *Medical University Vienna*, Austria
Doctoral thesis: "*The mechanisms of B7 targeting costimulation blockade in transplantation*"
(Supervisor: Prof. Dr. Thomas Wekerle)

MEDICAL TRAINING

Residencies and fellowships:

2010-2015 Dept. of Surgery, Div. of General-, Vascular- and Transplantsurgery
Medical University Vienna, Austria
(Head: Prof. Dr. Michael Gnant)
2015 Dept. of Surgery
KH Horn
(Head: Prim. Dr. Reinhold Klug)
2015-ongoing Dept. of Surgery, Div. of General-, Vascular- and Transplantsurgery
Medical University Vienna, Austria
(Head: Prof. Dr. Michael Gnant)

Clinical electives:

August 2009 Dept. of Surgery, Div. of General Surgery
Hospital de Civil de Culiacan, Culiacan, Mexico
(Head: Dr. Martha Quinónez Meza)
January 2010 Dept. of Plastic- and Reconstructive Surgery
Nagoya University Hospital, Nagoya, Japan
(Head: Prof. Dr. Yuzuru Kamei)

ADDITIONAL MEDICAL TRAINING

2009	Rookiecourse in microsurgery, MAZ Linz, Austria
2010	Handsurgery basis course, Hospital for trauma surgery, Lorenz Böhler, Vienna
2011	Anastomosis- and Laparoscopic surgery course, Medical University Vienna
2014	Training and Certificate in Good Clinical Practice (GCP)
2015	AGC GI course, Davos, Switzerland
2017	DaVinci course, Gent, Belgium

TEACHING EXPERIENCE

2007	Conducted workshop on digital wound analysis at the <i>University College Hospital</i> , Galway, Ireland
2008-2010	Anatomy tutor at the Dept. of Anatomy, <i>Medical University Vienna</i> , Austria (Head: Prof. Dr. Helmut Gruber)

Supervisor and Co-Supervisor of Diploma theses:

Sophie Mayerhoffer:	<i>Long-term outcome of renal transplant recipients treated with the costimulation blocker belatacept in comparison to patients treated with cyclosporine – A retrospective, case-matched, single-center study</i>
Marin Purtic: Care Ay:	<i>Advagraf vs Prograf in der de novo Nierentransplantation- eine retrospektive Datenanalyse</i> <i>Oxidativer Stress bei Leberresektion</i>

CLINICAL RESEARCH

- Subinvestigator of a phase II and IV, multi-center trial in kidney transplant recipients
- Subinvestigator of a phase IIIb, multi-center trial in patients undergoing liver resection

AWARDS AND SCHOLARSHIPS

- Students award, Medical University of Vienna 2008 and 2009
- JASSO scholarship 2009/10
- Austrotransplant-Poster Award, Austrian Society of Transplantation, 2011
Belatacept treatment for 2 years after liver transplantation is not associated with overt immunomodulation
Schwarz Ch., Rasoul-Rockenschaub S., Soliman T., Berlakovich GA., Steining R., Mühlbacher F., Wekerle T.
- Young Investigator Award, Austrian Society of Transplantation, 2011
Rapamycin and anti-LFA-1 overcome the barrier of T cell sensitization in a bone marrow transplantation-based tolerance model
Unger L., Pilat N., Ramsey H., **Schwarz Ch.**, Hock K., Farkas A., Baranyi U., Wekerle T.
- Young Investigator Award, Austrian Society of Transplantation, 2012
The role of donor and recipient CD40 in the induction of tolerance in a murine mixed chimerism model
Pilat N., Klaus C., **Schwarz C.**, Gattringer M., Schwaiger E., Baranyi U., Wekerle T.
- Young Investigator Award Austrian Society of Transplantation, 2014
The role of NK cells in chimerism induced transplantation tolerance
Mahr B., Pilat N., Hock K., **Schwarz C.**, Wekerle T.
- Theodor-Billroth-Award of the Austrian Surgical Society, 2015
T regulatory cell treatment prevents chronic rejection of heart allografts in a murine mixed chimerism model
Pilat N., Farkas A., Mahr B., **Schwarz Ch.**, Unger L., Hock K., Oberhuber R., Aumayr K., Wrba F., Wekerle T.
- Travel Grant ÖH 2015

- Basic science award, Austrian Society of Transplantation, 2015
Rapamycin and CTLA4Ig Synergize to Induce Stable Mixed Chimerism Without the Need for CD40 Blockade.
Pilat N., Klaus C., **Schwarz Ch.**, Hock K., Oberhuber R., Schwaiger E., Gattringer M., Ramsey H., Baranyi U., Zelger B., Brandacher G., Wrba F., Wekerle T.
- Austrotransplant-Poster Award, Austrian Society of Transplantation, 2015
Mechanisms of chronic CTLA4Ig therapy in murine cardiac transplantation
Schwarz Ch., Unger L., Mahr B., Aumayr K., Pilat N., Hock K., Farkas A., Wekerle T.
- Basic science award, Austrian Society of Transplantation, 2017
The immunosuppressive effect of CTLA4 immunoglobulin is dependent on regulatory T cells at low but not high doses
Schwarz Ch., Unger L., Mahr B., Aumayer K., Regele H., Farkas A., Hock K., Pilat N., Wekerle Th.

GRANTS

- **Grant from the major of Vienna:** 34 000 €: *Cell therapy with regulatory T cells to treat chronic transplant rejection*
- **Hochschuljubiläumsstiftung:** 10 000 €: *Optimizing immunosuppressive therapy with the costimulation blocker CTLA4Ig in organ transplantation*
- **Grant from the major of Vienna:** 16 500 €: *The role of B7 on T cells and its relevance for immunosuppression in organ transplantation*
- **Third-party funds:** 40 000 €: *The impact of iron homeostasis on liver regeneration – a pilot study*

INVITED REVIEWER

- Transplantation
- Journal of Critical Care
- Transplant International
- European Surgery
- Transplant Immunology
- Heart, Lung and Circulation
- Drug Design, Development and Therapy
- Transplantation Direct

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

- Austrian Society for Transplantation, Transfusion and Genetics
- Austrian Society for Surgery
- European Society of Transplantation, ESOT
- American College of Surgeons
- Austrian Society of Surgical Oncology, ACO ASSO
- European Society of Surgical Oncology, ESSO
- Austrian Society of Molecular Life Sciences and Biotechnology, ÖGMBT

PUBLICATIONS

1. Wundverband aus Biozellulose mit Polyhexamethylenbiguanid
Wild T., Bruckner M., Heilinger J., **Schwarz Ch.**, Otto F., Götzinger P.
Wiener Medizinische Wochenschrift Skriptum 3/08: 19-20
2. Behandlungsstrategien von enteralen und enterokutanen Fisteln
Wild T., Eisenbeutel G., Otto F., **Schwarz Ch.**, Unger E., Götzinger P.
European Surgery Vol. 40, Supplement Nr. 222, 2008: 27-30
3. Reduction mammoplasty as a secondary therapy option for chronic breast pain after lumpectomy in the breast: a case report
Kömürücü F., **Schwarz Ch.**, Bartsch R., Deutinger M.
European Journal of Plastic Surgery, Vol. 37, Issue 5, 2011: 399-401
4. Eradication of MRSA in pressure ulcers comparing a polihexanide containing cellulose dressing with polihexanide swabs in a prospective randomized study
Wild T., Bruckner M., Payrich M., **Schwarz Ch.**, Eberlein T., Andriessen A.
Advances in Skin and Wound Care, 2012 Jan; 25(1): 17-22
5. Anti-LFA-1 and rapamycin overcome costimulation blockade-resistant rejection in sensitized bone marrow recipients
Haley R., Pilat N., Hock K., Klaus C., Unger L., **Schwarz Ch.**, Baranyi U., Gattringer M., Schwaiger E., Wrba F., Wekerle T.
Transpl Int, 2013 Feb;26(2):206-18
6. Modulating T cell costimulation as a new concept in organ transplantation (REVIEW)
Pilat N., **Schwarz Ch.**, Wekerle T.
Curr Opinion in Organ Transplantation, 2012 Aug; 17 (4): 268-75
7. Rapamycin and CTLA4Ig Synergize to Induce Stable Mixed Chimerism Without the Need for CD40 Blockade.
Pilat N., Klaus C., **Schwarz Ch.**, Hock K., Oberhuber R., Schwaiger E., Gattringer M., Ramsey H., Baranyi U., Zelger B., Brandacher G., Wrba F., Wekerle T.
Am J Transplant. 2015 Jun;15(6):1568-79
8. T regulatory cell treatment prevents chronic rejection of heart allografts in a murine mixed chimerism model
Pilat N., Farkas A., Mahr B., **Schwarz Ch.**, Unger L., Hock K., Oberhuber R., Aumayr K., Wrba F., Wekerle T.
J Heart Lung Transplant. 2014 Apr;33(4):429-37.
9. Belatacept treatment for 2 years after liver transplantation is not associated with operational tolerance
Schwarz Ch., Rasoul-Rockenschaub S., Soliman T., Steininger R., Mühlbacher F., Berlakovich GA., Wekerle T.
Clin Transplant. 2015 Jan;29(1):85-9
10. Long-term outcome of belatacept therapy in de novo kidney transplant recipients – a case match analysis
Schwarz Ch., Mayerhoffer S., Berlakovich GA., Steininger R., Soliman T., Watschinger B., Böhmig G., König F., Mühlbacher F., Wekerle T.
Transpl Int. 2015 Jul;28(7):820-7
11. TAC, MMF and low dose steroids with or without IL2-R antibody induction therapy – a retrospective cohort analysis
Schwarz Ch., Böhmig G., Steininger R., Unger L., Kristo I., Kozakowski N., Berlakovich GA., Soliman Th., Mühlbacher F.
Transplant Proc. 2015 Oct;47(8):2446-9.

12. Reduced inflammatory response after stapler hepatectomy compared to CUSA resection – a randomized controlled trial
Schwarz Ch., Roth G., Tudor B., Klaus D., Fleischmann E., Wekerle Th., Bodingbauer M., Kaczirek K.
PLoS One. 2015 Oct 9;10(10):e0140314.
13. Abdominal drainage after liver transplantation
Schwarz Ch., Schoppmann S., Györi G., Silberhumer G., Soliman T., Steininger S., Mühlbacher F., Berlakovich GA.
Langenbecks Arch Surg. 2015 Oct;400(7):813-9
14. Deletional and regulatory mechanisms coalesce to drive transplantation tolerance through mixed chimerism forward (REVIEW)
Hock K., Mahr B., **Schwarz Ch.**, Wekerle Th.
Eur J Immunol. 2015 Sep;45(9):2470-9
15. IL-2/aIL-2 Complex Treatment Cannot Be Substituted for the Adoptive Transfer of Regulatory T Cells to Promote Bone Marrow Engraftment
Mahr B., Unger L., Hock K., Pilat N., Baranayi U., **Schwarz Ch.**, Farkas A., Wekerle Th.
PLoS One. 2016 Jan 5;11(1):e0146245.
16. Infectious tolerance including minor donor antigens in Treg-based chimerism
Pilat N., Mahr B., Unger L., Hock K., **Schwarz Ch.**, Farkas A., Wrba F., Wekerle Th.
JCI Insight. 2016 May 19;1(7):e85911.
17. Kidney transplantation with corticosteroids alone after haploidentical HSCT from the same donor
Schwarz Ch., Lawitschka A., Böhmig G., Dauber E., Greinix H., Kozakowski N., Mühlbacher F., Berlakovich GA, Wekerle Th.
Transplantation. 2016 Oct;100(10):2219-21
18. The immunosuppressive effect of CTLA4 immunoglobulin is dependent on regulatory T cells at low but not high doses
Schwarz Ch., Unger L, Mahr B., Aumayer K., Regele H., Farkas A., Hock K., Pilat N., Wekerle Th.
Am J Transplant. 2016 Dec;16(12):3404-3415
19. Impact of neoadjuvant chemotherapy on clinical risk scores and survival in patients with colorectal liver metastasis
Wimmer K., **Schwarz Ch.**, Szabo C., Bodingbauer M., Tamandl D., Mittlböck M., Kaczirek K.
Ann Surg Oncol. 2017 Jan;24(1):236-243
20. Impact of ultrasound examination early after kidney transplantation
Schwarz Ch., Mühlbacher J., Böhmig G.A., Purtic M., Pablik E., Unger L., Kristo I., Soliman Th., Berlakovich GA.
European Surgery 2017;49(3):140-144
21. Inflammatory response and oxidative stress during liver resection
Schwarz Ch., Fitschek F., Bar-Or D., Klaus DA., Tudor B., Fleischmann E., Roth G., Wekerle Th., Gnant M., Bodingbauer M., Kaczirek K.
PLoS One. 2017 Oct 18;12(10):e0185685.
22. Von Willebrand Factor Antigen predicts outcome in patients after liver resection of hepatocellular carcinoma
Schwarz Ch., Fitschek F., Saukel V., Bota S., Ferlitsch M., Ferlitsch A., Bodingbauer M., Kaczirek K
Gut and Liver, accepted
23. Regulatory T cells promote natural killer cell education in mixed chimeras
Mahr B., Pilat N., Maschke S., Granzkyfyzky N., **Schwarz Ch.**, Unger L., Hock K., Farkas A., Klaus C., Regele H., Wekerle Th.
Am J Transplant. 2017 May 10. doi: 10.1111/ajt.14342

24. Microscopic biliary and perineural invasion and clinical outcome after neoadjuvant bevacizumab-based chemotherapy and liver resection in patients with colorectal liver metastases
Stift J., Graf A., **Schwarz Ch.**, Tamandl D., Starlinger P., Herac M., Beer A., Wrba F., Bodingbauer M., Kaczirek K., Stremitzer S.
Eur J Surg Oncol, 2018 Jan;44(1):139-147.
25. High BMI and male sex as risk factor for increased short-term renal impairment in living kidney donors – Retrospective analysis of 289 consecutive cases
Unger LW., Feka J., Sabler P., Rasoul-Rockenschaub S., Györi G., Hofmann M., **Schwarz Ch.**, Soliman T., Böhmig G., Kainz A., Salat A., Berlakovich GA.
Int J Surg. 2017 Sep 11. pii: S1743-9191(17)31255-
26. Allograft rejection is associated with the development of functional IgE specific for donor MHC antigens
Farkas A., Baranyi U., Böhmig GA., Unger L., Hopf S., Wahrmann M., Regele H., Mahr B., **Schwarz Ch.**, Pilat N., Kristo I., Lupinek C., Thalhammer J., Wlodek E., Clatworthy M., Pettingrew G., Valenta R., Wekerle T.
JACI, in revision
27. Allograft and patient survival after sequential HSCT and kidney transplantation from the same donor - a multicenter analysis
Eder M.*, **Schwarz Ch.***, Krammer M., Jacobson N., Stavroula ML, Covan M., Chongokkairatanakul T., Gastron R., Ravanan R., Ishida H., Bachmann A., Alvarez S., Koch M., Garrouste C., Duffner UA., Cullis B., Schaap N., Medinger M., Wekerle T., Oberbauer R.
Am J Transpl, submitted, * contributed equally

1. Tissue wound oxygenation (TWO2) in therapy of chronic infected wounds
Schwarz Ch., Otto F., Ohrenberger G., Binder D., Wild T.
EWMA Conference 2008, Lisbon
2. Reduction mammoplasty as a secondary therapy option for chronic breast pain after lumpectomy in the breast: a case report
Schwarz Ch., Kömürçü F., Bartsch R, Deutinger M.
ÖGPÄRC Jahrestagung 2010, Graz
3. Belatacept in de novo kidney transplant recipients – 10-year experience in a single center
Schwarz Ch., Mayerhoffer S., Berlakovich GA., Steininger R., Soliman T., Watschinger B., Mühlbacher F., Wekerle T.
Jahrestagung der Österreichischen Gesellschaft für Transplantation, Transfusion und Genetik 2011, Graz
4. Belatacept treatment for 2 years after liver transplantation is not associated with overt immunomodulation
Schwarz Ch., Rasoul-Rockenschaub S., Soliman T., Berlakovich GA., Steininger R., Mühlbacher F., Wekerle T.
Jahrestagung der Österreichischen Gesellschaft für Transplantation, Transfusion und Genetik 2011, Graz
5. To drain or not to drain after liver transplantation
Schwarz Ch., Schoppmann S., Györi G., Silberhumer G., Soliman T., Steininger S., Mühlbacher F., Berlakovich GA.
Liver Transplantation Vol 18 2012, Sppl. S1 p 271
6. Belatacept treatment for 2 years after liver transplantation is not associated with overt immunomodulation
Schwarz Ch., Rasoul-Rockenschaub S., Soliman T., Steininger R., Mühlbacher F., Berlakovich GA., Wekerle T.
Liver Transplantation Vol 18 2012, Sppl. S1 p 154
7. De novo Advagraf in der Nierentransplantation – Wiener Zentrumserfahrung
Schwarz Ch., Purtic M., Kozakowski N., Mühlbacher F., Steininger R., Böhmig G.A.
European Surgery Sppl 246/12; p34-35
8. Therapeutic drug monitoring of Advagraf® in de novo kidney transplant recipients
Schwarz Ch., Unger L., Schmid R., Zeitlinger M., Kristo I., Berlakovich GA., Soliman T., Mühlbacher F., Steininger R.
European Surgery Sppl 246/12; p35-36
9. Kidney transplantation following HSCT from the same haploidentical donor without immunosuppression – a case report
Schwarz Ch., Lavitschka A., Böhmig GA., Dauber EM., Greinix H., Kozakowski N., Berlakovich GA., Mühlbacher F., Wekerle T.
ESOT 2013, Vienna
10. Dose-dependent immunosuppressive efficacy of chronic CTLA4Ig therapy in mice
Schwarz Ch., Unger L., Aumayer K., Mahr B., Wekerle T.
ESOT 2013, Vienna
11. Value of early postoperative ultrasound after kidney transplantation
Schwarz Ch., Mühlbacher J., Berlakovich GA., Soliman Th., Mühlbacher F., Steininger R.
ESOT 2013, Vienna
12. High doses of once-daily tacrolimus correlate with high tacrolimus exposure in the early phase after kidney transplantation
Schwarz Ch., Unger L., Schmid R., Zeitlinger M., Kristo I., Berlakovich GA., Soliman Th., Mühlbacher F., Steininger R.
ESOT 2013, Vienna

13. The role of Tregs under CTLA4 Ig therapy
Schwarz Ch., Unger L., Aumayr K., Mahr B., Wekerle T.
ATX 2013, Mayerhofen
14. Tacrolimus within-patient variability in the early phase after KTX – ADV vs. PGF
Schwarz Ch., Purtic M., Kozakowski N., Mühlbacher F., Unger L., Steininger P., Soliman T., Berlakovich GA., Böhmig G., Steininger R.
ATX 2013, Mayerhofen
15. Regulatory T cell therapy improves outcome of chronic CTLA4 Ig therapy in murine heart transplantation
Schwarz Ch., Mahr B., Unger L., Mayerhoffer S., Pilat N., Hock K., Kristo I., Aumayr K., Wekerle T.
ATX 2014, Bad Ischl
16. The immunosuppressive effect of CTLA4 Ig monotherapy depends on the presence of Tregs only at suboptimally low doses
Schwarz Ch., Unger L., Mahr B., Aumayr K., Pilat N., Hock K., Farkas A., Kristo I., Wekerle T.
ATC 2015, Philadelphia
17. Treg dependency of CTLA4 Ig monotherapy is dose-dependent
Schwarz Ch., Unger L., Mahr B., Aumayr K., Pilat N., Hock K., Farkas A., Kristo I., Wekerle T.
ESOT 2015, Brussels
18. Tacrolimus, mycophenolate mofetil and low dose steroids with or without IL2-R antibody induction therapy – a retrospective cohort analysis
Schwarz Ch., Böhmig G., Steininger R., Unger L., Kristo I., Kozakowski N., Soliman Th., Mühlbacher F., Berlakovich GA.
ESOT 2015, Brussels
19. Impact of transection speed on inflammatory response in liver resection
Schwarz Ch., Roth G., Tudor B., Klaus D., Fleischmann E., Wekerle Th., Bodingbauer M., Kaczirek K.
ACS conference 2015, Chicago
20. Mechanisms of chronic CTLA4Ig therapy in murine cardiac transplantation
Schwarz Ch., Unger L., Mahr B., Aumayr K., Pilat N., Hock K., Farkas A., Wekerle T.
Austrotransplant 2015, Kitzbühel
21. Three-year outcome after HSCT with subsequent KT from the same haploidentical donor without immunosuppression
Schwarz Ch., Lawitschka A., Böhmig G., Dauber E., Greinix H., Kozakowski N., Berlakovich GA., Mühlbacher F., Wekerle Th.
American Transplant Congress 2016, Boston
22. Perioperative change in oxidative stress and inflammatory response during liver resection is predictive for severe postoperative complications
Schwarz Ch., Or Bar D., Klaus DA., Tudor B., Fleischmann E., Roth G., Wekerle Th., Gnant M., Bodingbauer M., Kaczirek K.
Conference of the Austrian Society of Surgery 2016, Salzburg
23. In vivo Treg expansion under costimulation blockade targets early rejection and improves long-term outcome
Schwarz Ch., Mahr B., Unger L., Pilat N., Maschke S., Regele H., Aumayr K., Wekerle T.
ESOT 2017, Barcelona
24. In vivo Treg expansion under costimulation blockade targets early rejection and improves long-term outcome by decreasing B7 expression on antigen presenting cells
Schwarz Ch., Mahr B., Unger L., Pilat N., Maschke S., Regele H., Aumayr K., Wekerle T.
ATX 2017, Zell am See

1. Skriptum der Wundheilung
Wild T., Abbas S., Payrich M., **Schwarz Ch.**, Bruckner M, Stättner S., Zöch G.