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EMPLOYMENT

2016 – Current Qatar University	Assistant/Associate Professor	Biomedical Research Center Biomedical Science Department (joint) Mechanical Engineering Department (joint)	Doha, Qatar
2015 – 2016 Qatar Foundation	Senior Scientist	Qatar Cardiovascular Research Center	Doha, Qatar
2010 – 2015 Dogus University	Assistant/Associate Professor	Mechanical Engineering Department	Istanbul, Turkey
2008 – 2010 Cornell University	Postdoctoral Fellow	Biomedical Engineering Department	Ithaca, NY, USA
2007 – 2008 JM Hyde Consulting	Pharmaceutical Engineer	Sanofi Pasteur Vaccine Production Facility, Poconos, PA, USA	Bethlehem, PA, USA
2001 – 2007 Lehigh University	Research Assistant	Mechanical Engineering / Bioengineering Department	Bethlehem, PA, USA

EDUCATION

2008 - 2010 Cornell University	Postdoctoral Training Mentor: Jonathan Butcher	Biomedical Engineering Department	Ithaca, NY, USA
2004 – 2007 Lehigh University	Ph.D Mentor: Samir Ghadiali	Bioengineering Department	Bethlehem, PA, USA
2001 – 2004 Lehigh University	M.Sc. Mentor: Sudhakar Neti	Mechanical Engineering Department	Bethlehem, PA, USA
1996 – 2001 Middle East Technical University	B.Sc (5 years program in English)	Mechanical Engineering Department	Ankara, Turkey

RESEARCH FOCUS in the Cardiac Bio-fluid Mechanics Research Lab: Mechanobiology of Cardiac Defects

In vivo/in vitro cardiac disease models: We investigate mechanobiology of cardiovascular diseases (congenital heart disease, atherosclerosis, aortic valve calcification, aortic aneursysms) using complex cardiac mimicking microfluidic flow systems integrated with 3D in vitro culture platforms. Zebrafish and chick embryo in vivo models are utilized for genetic, surgical and environmental toxicological interference to generate clinically relevant cardiac defects.

Numerical Simulation of Cardiovascular Flows: We generate patient specific computational fluid dynamics models of disturbed hemodynamics for CVDs using advanced techniques such as fluid-structure interaction modeling.

Machine Learning Systems for CVD diagnosis and therapy planning: We employ machine learning approaches such as deep neural networks to advance CVD diagnosis and CVD therapy planning.

Biomedical Instruments Design: We design and produce cardiac mimicking physiological flow pumps and 3D printed microfluidic systems for in vitro experiments and tissue engineering applications

Cardiac Tissue Engineering: Cardiac scaffolds are designed and produced and then tested using in vitro bioreactor systems and in vivo disease models

Nanomedicine for CVDs: Different cardiac nanomedicine formulations are produced and tested using in vitro and in vivo platforms

RESEARCH SUPPORT (Lead Principal Investigator)

Funding Agency	Program	Title	Budget	Duration
Qatar National Research Fund	Academic Research Grant (ARG)	AI-enabled Early Detection System of Critical Care Shock Risk Patients using a Novel Biomarker-based Biosensor and a Wristband Device for Vital Sign Monitoring	738,000 USD	2023 - 2025
Qatar National Research Fund	National Priorities Research Program (NPRP)	Smart system for automatic assessment of bioprosthetic heart valve designs for transcatheter aortic valve replacement therapy	508,000 USD	2021 - 2024
Qatar University	High Impact Grant (HIG) Program	QU-Vitro: A Programmable Physiological Cardiovascular Flow Mimicking Pump for In Vitro Perfusion Experiments	590,000 QAR	2023 - 2024
Qatar University	Post-Doc Initiative Program (as mentor)	Zebrafish Research at an Advanced Level	112,000 USD	2023 - 2024
Qatar National Research Fund	National Priorities Research Program (NPRP)	Mechano-biological Development of Congenital Heart Defects	602,000 USD	2018 – 2022 (completed)
Qatar University	International Research Collaboration Co-Fund (IRCC)	Experimental and Biological Investigation of Hemodynamics-induced Injuries for Cardiovascular Disorders	112,000 USD	2021 – 2022 (completed)
Qatar National Research Fund	COVID Rapid Response Call (RRC)	Epidemiological investigation of the association of renin-angiotestin system blockade and Covid-19 outcomes	100,000 QAR	2020 (completed)
Qatar National Research Fund	Undergraduate Research Experience Program (UREP)	Design and Implementation of a Pulsatile Syringe Pump system for In Vitro Cardiovascular Studies	30,000 USD	2023 - 2024
Qatar National Research Fund	Conference & Workshop Sponsorship Program (CWSP)	Biomaterial, Biosensor and Microfluidics Technologies for Medical Applications	30,000 USD	2023 (completed)
Qatar National Research Fund	Undergraduate Research Experience Program (UREP)	Functional validation of a novel mutation in Desma protein in relevance to limb girdle muscular dystrophies using the Zebrafish model	15,000 USD	2021 (completed)
Qatar National Research Fund	Undergraduate Research Experience Program (UREP)	The effects of cell mechanical property alterations on the survival of lung epithelial cells under shear stress	20,000 USD	2020 (completed)
Qatar National Research Fund	Conference & Workshop Sponsorship Program (CWSP)	Current and Emerging Trends in Zebrafish Research	37,000 USD	2019 (completed)

Qatar University	Collaborative Grant (CG)	Role of Disturbed Hemodynamics on the Embryonic Development of Congenital Heart Defects	120,000 QAR	2017 – 2018 (completed)
Qatar National Research Fund	Conference & Workshop Sponsorship Program (CWSP)	Tissue Engineering and Stem Cell Technologies	20,000 USD	2017 (completed)
Turkish Science Foundation	Scientific Research Support Program	Development of Accurate Computational Diagnosis Techniques for Aortic Valve Disease	91,000 USD	2013 – 2015 (completed)
European Union	FP7 Marie Curie Career Integration Grants	Mechanical Regulation of Congenital Heart Defects	100,000 Euro	2011 – 2015 (completed)
Turkish Science Foundation	Young Researchers Career Development Program	Experimental and Computational Investigation of Influence of Heart Outflow Tract Constrictions on Abnormal Embryonic Heart Development	141,000 USD	2012 – 2015 (completed)

RESEARCH SUPPORT (Co-Principal Investigator)

Funding Agency	Program	Title	Budget	Duration
Qatar National Research Fund	Academic Research Grant (ARG)	Development of Novel Ultrasmall Gold Nanoprobes for Labeling PLGA Nanocarriers	494,000 USD	2023 - 2025
Qatar National Research Fund	Academic Research Grant (ARG)	Plasticizers-containing Water: Between Toxicity Assessment and Development of Efficient Membranes for Their Removal	712,000 USD	2023 - 2025
Qatar University	Collaborative Grant (CG)	Nanomedicine delivery via medical nebulizers for the prevention of virus-caused secondary pneumonia: COVID-19 as a case study	201,300 QAR	2022 - 2023
Qatar University	Collaborative Grant (CG)	Unravelling the molecular mechanisms that cardiac ryanodine receptor 2 and myosin-binding protein-C missense mutations lead to severe cardiac disease	210,000 QAR	2021 - 2023
Qatar University	International Research Collaboration Co-Fund (IRCC)	Revolutionized Intubation System for Smart Intensive Care	$65,800	2022 - 2024
Qatar University	Collaborative Grant (CG)	Experimental Development of Optimal Cancer Therapy in vitro and in vivo	298,500 QAR	2019 – 2021 (completed)
Qatar University	International Research Collaboration Co-Fund (IRCC)	Non-invasive method for early detection of Heart failure from 2D Materials (MXENE/Graphene) MEMS Biomedical sensors	219,000 QAR	2020 – 2022 (completed)

ORGANIZED SCIENTIFIC EVENTS

The First International Biomaterials Conference in Qatar, "Biomaterial, Biosensor and Microfluidics Technologies for Medical Applications": Organized an international biomaterials conference at Qatar University Biomedical Research Center, on 6-7 May, 2023. Several international experts participated to the event. The conference was accredited by CPD. HC Yalcin received a prestigious Conference and Workshop Sponsorship Program fund by Qatar National Research Fund for the event.

QU Health & QU BRC Neuro Research Symposium: Organized an international symposium on neurodegenerative diseases on 12 May 2022 with 10 local and international expert speakers.

Emerging and Enabling Materials: In collaboration with Emergent Materials Journal, organized an international online conference, on 22-24 November 2021 with about 60 Material Science international experts as speakers. More than 300 participants attended to the online event.

Materials of the Future: Smart Applications in Science and Engineering**:** In collaboration with Emergent Materials Journal, organized an international online conference, on 29-31 March 2021 with 30 Material Science international experts as speakers. More than 200 participants attended to the online event.

Materials against COVID-19: How materials science can impact the pandemic**:** Organized an international webinar at Qatar University Biomedical Research Center, on 16 July, 2020, with 6 international experts working on Material Science applications of COVID-19 pandemic. More than 100 participants attended to the online event.

Current and Emerging Trends in Zebrafish Research**:** Organized an international workshop on zebrfish research at Qatar University Biomedical Research Center, on 13-17 April, 2019. Several international experts participated to the event. The workshop was accredited by CPD. HC Yalcin received a prestigious Conference and Workshop Sponsorship Program fund by Qatar National Research Fund for the event.

Tissue Engineering and Stem Cell Technologies Workshop**:** Organized an international workshop on tissue engineering and stem cell technolgies, at Qatar University Biomedical Research Center, on 25-26 October 2017. Several international experts were hosted for the event. CPD accredited event was organized with the prestigious Conference and Workshop Sponsorship Program fund provided to HC Yalcin, by Qatar National Research Fund.

Principles of Mammalian Cell Culture**:** Organized one week workshop on september 2016 and september 2018 at Qatar University Biomedical Research Center, to train new graduate students and new faculty at the university on basics of cell culture practice and example applications. For the event, arranged the program, also delivered multiple lectures.

AWARDS

Research Excellence Award in Medical, Biomedical and Health Sciences, from Qatar University, 2023

Young Scientist Award from Turkish Academy of Sciences, 2013.

Marie Curie Fellowship from European Union, FP7 Programme, 2011.

Best Poster Award in The First International Biomaterials Conference in Qatar, 2023

Best Faculty Research Poster in QU 5th Health Cluster Symposium, 2020

Best Graduate Student Research Poster in 2020 QU Annual Research Forum

Best Faculty Research Poster in 2019 QU Annual Research Forum

Second Best Faculty Podium Presentation in QU 4th Health Cluster Symposium, 2019

Best Faculty Research Poster in QU 4th Health Cluster Symposium, 2019

Associate Research Professorship, Qatar University, 2019

Associate Professorship in Mechanical Engineering, Republic of Turkey Inter-university Board, 2015.

JOURNAL EDITORSHIP AND COMMITTEE SERVICE

Co-Chief Editor, Springer`s Emergent Materials Journal

Associate Editor, Frontiers in Physiology, Developmental Physiology Section

Editorial Board Member, Frontiers in Cardiovascular Medicine

Editorial Board Member, Hindawi`s Biomedical Research International Journal

Editorial Board Member, Springer`s Informatics in Medicine Unlocked Journal

Member of QF- EVMC The Institutional Animal Care and Use Committee (IACUC) committee

Co-lead for Qatar University Cardio-Neuro Research Networking Group

Head of Qatar University Biomedical Research Center, Zebrafish and Chick Embryo Animal Facilities

ORGANIZED SPECIAL ISSUES AND BOOKS AS EDITOR

(Lead Editor) Springer Emergent Materials Journal, Biomaterials Special Issues
https://link.springer.com/journal/42247/volumes-and-issues/2-2

(Lead Editor) Springer Emergent Materials Journal, COVID Materials Special Issue

https://link.springer.com/journal/42247/volumes-and-issues/4-1

(Lead Editor) Frontiers in Physiology, Techniques on Developing Animals Special Issue
https://www.frontiersin.org/research-topics/24258/advances-in-techniques-for-measurement-and-assessment-of-physiological-processes-in-developing-anima

(Lead Editor) MDPI Journal of Cardiovascular Development and Disease, "Advances in the Hemodynamic Analysis in the Cardiovascular System" Special Issue
https://www.mdpi.com/journal/jcdd/special_issues/hemodynamic_cardiovascular

(Co-editor) Frontiers in Pharmacology, Emerging Mechanisms in Cardiovascular Disease Special Issue
https://www.frontiersin.org/research-topics/40516/emerging-mechanisms-in-cardiovascular-disease

(Co-editor) Predicting Heart Failure: Invasive, Non-Invasive, Machine Learning, and Artificial Intelligence Based Methods. John Wiley & Sons. 2022.
https://www.wiley.com/en-us/Predicting+Heart+Failure:+Invasive,+Non+Invasive,+Machine+Learning,+and+Artificial+Intelligence+Based+Methods-p-9781119813033

TEACHING

- Principles of Biomedical Engineering (2010 – current, graduate and undergraduate levels): Has been teaching this course at Dogus University and Qatar University since 2010 to introduce engineering students the field of Biomedical Engineering.
- Directed Studies in Biomedical Science (2020 – current, graduate level): This graduate course aimed to show Qatar University Biomedical Science PhD students basics of experimental design, review and research paper manuscript writing, effective presentation skills, proposal concept development and other practical useful skills for academic life.
- Fundamentals of Fluid Mechanics I, II (2010 – 2015, undergraduate level): Taught in English at Dogus University Mechanical Engineering Department. Fundamental laws governing fluid mechanics is explained with scientific and industrial examples
- Fundamentals of Heat Transfer I, II (2010 – 2015, undergraduate level): Taught in English at Dogus University Mechanical Engineering Department. Fundamental laws governing heat transfer is explained with scientific and industrial examples
- Guest Lectures at several Qatar University Graduate Programs such as Genetic Counseling, Biomedical Science, College of Medicine, Mechanical Engineering, Electrical Engineering, to present a variety of concepts such as Animal Experimentation, Ethics in Biomedical Research, Emerging Bioengineering Fields

MENTORSHIP EXPERIENCE

Postdoc Supervision

1. Huseyin Enes Salman (2020 – 2021). NPRP hire. Currently faculty member at TOBB University, Turkey
2. Anju Sharma (2019). NPRP hire.
3. Vijayakumar Sukumaran (2021 – 2022). NPRP hire.
4. Fatiha Benslimane (2017 – 2019). BRC permanent resercher
5. Azza Naija (2021 – ongoing). BRC permanent researcher
6. Maram Hasan (2021 – ongoing). BRC permanent researcher
7. Hakam Hasan Alkhateeb (2019). Visiting scholar from University of Jordan for NPRP

Graduate Student/Research Assistant Supervision

1. Mashael Al-Badr (2017 – ongoing). PhD candidate in QU Biology
2. Lara Chahrour (2022). M.Sc. in Molecular Diagnostics, Faculty of Science in Lebanese University, Lebanon
3. Zain Zakaria (2016 – 2021). PhD in QU Biology (graduated)
4. Muna Suleiman (2018 – 2019). M.Sc. in Pharmacy (graduated)
5. Maha Walid Ayoub Alser (2019 – 2021). RA in NPRP. M.Sc. in HBKU College of Health and Life Sciences (graduated)
6. Samar Shurbaji (2018 – 2021). RA in QU IRCC grant. M.Sc. in QU Materials Science Program (graduated)
7. Hessa Althani (2019 – 2021). M.Sc. in QU Biomedical Science, Research Track (graduated)
8. Gulsen Guliz Anlar (2019 – ongoing). PhD candidate in QU College of Medicine
9. Hanan Abunada (2019). M.Sc. in QU Biomedical Science, Management Track (graduated)
10. Manal M. Al-Ghoul (2020). M.Sc. in QU Biomedical Science, Management Track (graduated)
11. Onur Mutlu (2021 – ongoing). RA in NPRP

12. Anas M. Tahir (2021 – 2022). RA in NPRP
13. Hana Adel Abdelrahman (2019). RA in NPRP
14. Mahmoud Khatib Ali Abdelrasool (2018 – 2022). RA in NPRP and IRCC
15. Rawia Abdulraheem Alhalbouni (2021). RA in NPRP
16. Mohammed Murtaza (2021). RA in NPRP
17. Ahasan Atick Faisal (2022 – ongoing). RA in NPRP
18. Munshi Sajidul Islam (2023 – ongoing). RA in QU HIG
19. Ruba Suleiman (2022- ongoing). RA in NPRP
20. Laila Barrak (2023 – ongoing). PhD candidate in QU College of Medicine

Undergraduate Student Supervision

1. Mahmoud Abdelrasool, Mohammed Badie, Maha Mohammed, and Salma Salman (UREP project, 2017)
2. Heba Almaghrbi, Halah Noor Nasir, and Fatima Nasser (UREP project, 2020)
3. Hissa Faleh Al-Thani and Muneera Nasir Ahmad (QU Biomedical Science graduation project, 2018)
4. Amal Zedan Nasr Aya Khaled Omar (QU Biomedical Science graduation project, 2019)
5. Batoul Haddad and Zenab Elhashmy (QU Biomedical Science graduation project, 2019)
6. Asma M. Essa and Noura J. A. Aldous (QU Biomedical Science graduation project, 2019)
7. Haya Kordi and Amena Al-Sadi (QU Biomedical Science graduation project, 2020)
8. Fatima Khalid Al-Kuwari and Wigdan Ahmed Ali (QU Biomedical Science graduation project, 2020)
9. Dana Mohammed Al-Fakhro and Hend Khaled Ibrahim (QU Biomedical Science graduation project, 2020)
10. Fatima Nasser and Halah N. Nasir (QU Biomedical Science graduation project, 2021)
11. Gawaher Maghoub and Heba Moussa (QU Biomedical Science graduation project, 2021)
12. Yasmin Elsharabassi (QU Biomedical Science graduation project, 2022)
13. Noreliman Hedfi (2021). Summer intern from Bahcesehir University, Turkey
14. Mariam Elhaj (2018). Summer intern from National Engineering School of Sfax, Tunisia
15. Somaiya Abdulhakim and Amera Ismail Mohamed (QU Biomedical Science graduation project, 2022)
16. Hafsa Khalid, Khaled Hossain, Amna Zar, Solaiman Mohammad, Mohammed Sarkar, Hazim Hamid (UREP project, 2023)

ACTIVE INTERNATIONAL COLLABORATIONS

- Prof. Warren Burggren`s Lab from University of North Texas on Environmental Toxicology
- Prof. Ramani Ramchandran`s Lab from Medical College of Wisconsin on Zebrafish Vascular Disease Models
- Prof. Jonathan Butcher`s Lab from Cornell University on chick embryo models of heart defects
- Prof. Huseyin Cumhur Tekin`s Lab from Izmir Institute of Technology, Turkey on microfluidic systems
- Prof. Vahid Serpooshan`s Lab from Georgia Institue of Technology on 3D in vitro systems
- Prof. Mehmet Yavuz`s Lab from Middle East Technical University, Turkey on experimental flow systems
- Prof. Ibrahim Elshirbiny`s lab from Zewail City of Science and Technology, Egypt on cardiac nanomedicine
- Prof. Nathalie Jurisch-Yaksi` lab from Norwegian University of Science and Technology, Norway, on cerebrovascular flow dynamics in zebrafish

PUBLICATIONS (grouped per theme)

In vivo/in vitro cardiac disease models

1. (corresponding author **Yalcin, H.C**., Khandoker, A.H. and Kawakami, K., 2023. Advances in techniques for measurement and assessment of physiological processes in developing animals. *Frontiers in Physiology*, *14*.
2. **Yalcin, H.C**., Caiazzo, E., Ialenti, A. and Eid, A.H., 2023. Emerging mechanisms in cardiovascular disease. *Frontiers in Pharmacology*, 14.
3. Suleiman, M., Al Najjar, A., Zakaria, Z.Z., Ahmed, R., **Yalcin, H.C**., Korashy, H.M., Uddin, S., Riaz, S., Abdulrahman, N. and Mraiche, F., 2023. The Role of p90 Ribosomal S6 Kinase (RSK) in Tyrosine Kinase Inhibitor (TKI)-Induced Cardiotoxicity. *Journal of Cardiovascular Translational Research*, pp.1-11.
4. (corresponding author) Hasan, M., Al-Thani, H., El-Menyar, A., Zeidan, A., Althani, A. and **Yalcin, H.C.**, 2023. Disturbed hemodynamics and oxidative stress interaction in endothelial dysfunction and AAA progression: Focus on Nrf2 pathway. *International Journal of Cardiology*, p.131238.
5. (corresponding author) Sukumaran, V., Mutlu, O., Murtaza, M., Alhalbouni, R., Dubansky, B. and **Yalcin, H.C**., 2023. Experimental Assessment of Cardiovascular Physiology in the Chick Embryo. *Developmental Dynamics*.

6. (corresponding author) Al Thani, N.A., Hasan, M. and **Yalcin, H.C**., 2023. Use of Animal Models for Investigating Cardioprotective Roles of SGLT2 Inhibitors. *Journal of Cardiovascular Translational Research*, pp.1-12.
7. (corresponding author) Naija, A. and **Yalcin, H.C**., 2023. Evaluation of cadmium and mercury on cardiovascular and neurological systems: Effects on humans and fish. *Toxicology Reports*.
8. (corresponding author) Zakaria, Z.Z., Eisa-Beygi, S., Benslimane, F.M., Ramchandran, R. and **Yalcin, H.C**., 2022. Design and Microinjection of Morpholino Antisense Oligonucleotides and mRNA into Zebrafish Embryos to Elucidate Specific Gene Function in Heart Development. *Journal of visualized experiments: JoVE*, (186).
9. (corresponding author) Salman, H.E., Jurisch-Yaksi, N. and **Yalcin, H.C.,** 2022. Computational Modeling of Motile Cilia-Driven Cerebrospinal Flow in the Brain Ventricles of Zebrafish Embryo. *Bioengineering*, *9*(9), p.421.
10. Zakaria, Z.Z., Mahmoud, N.N., Benslimane, F.M., **Yalcin, H.C**., Al Moustafa, A.E. and Al-Asmakh, M., 2022. Developmental Toxicity of Surface-Modified Gold Nanorods in the Zebrafish Model. *ACS Omega*. 7 (34), 29598-29611.
11. Gupta, A., Thirugnanam, K., Thamilarasan, M., Mohieldin, A.M., Zedan, H.T., Prabhudesai, S., Griffin, M.R., Spearman, A.D., Pan, A., Palecek, S.P. and **Yalcin, H.C**., 2022. Cilia proteins are biomarkers of altered flow in the vasculature. *JCI insight*, *7*(6).
12. (corresponding author) Alser, M., Salman, H.E., Naïja, A., Seers, T.D., Khan, T. and **Yalcin, H.C**., 2022. Blood Flow Disturbance and Morphological Alterations Following the Right Atrial Ligation in the Chick Embryo. *Frontiers in Physiology*, p.499.
13. Zakaria, Z.Z., Aladwi, S.A., Benslimane, F., Al-Absi, E.S., Al-Shafai, M., **Yalcin, H.C.,** Khalil, A., Moustafa, A.E.A. and Al-Asmakh, M., 2021. numerical.
14. (corresponding author) Al-Ruweidi, M.K.A., Ali, F.H., Shurbaji, S., Popelka, A. and **Yalcin, H.C**., 2021. Dexamethasone and transdehydroandrosterone significantly reduce pulmonary epithelial cell injuries associated with mechanical ventilation. *Journal of Applied Physiology*.
15. (corresponding author) Salman, H.E., Alser, M., Shekhar, A., Gould, R.A., Benslimane, F.M., Butcher, J.T. and **Yalcin, H.C**., 2021. Effect of left atrial ligation-driven altered inflow hemodynamics on embryonic heart development: clues for prenatal progression of hypoplastic left heart syndrome. *Biomechanics and Modeling in Mechanobiology*, *20*(2), pp.733-750.
16. (corresponding author) Alser, M., Shurbaji, S. and **Yalcin, H.C**., 2021. Mechanosensitive pathways in heart development: findings from chick embryo studies. *Journal of Cardiovascular Development and Disease*, *8*(4), p.32.
17. Abdulrahman, N., Siveen, K.S., Joseph, J.M., Osman, A., **Yalcin, H.C**., Hasan, A., Uddin, S. and Mraiche, F., 2020. Inhibition of p90 ribosomal S6 kinase potentiates cisplatin activity in A549 human lung adenocarcinoma cells. *Journal of Pharmacy and Pharmacology*, *72*(11), pp.1536-1545.
18. Da'as, S.I., **Yalcin, H.C**., Nasrallah, G.K., Mohamed, I.A., Nomikos, M., Yacoub, M.H. and Fakhro, K.A., 2020. Functional characterization of human myosin-binding protein C3 variants associated with hypertrophic cardiomyopathy reveals exon-specific cardiac phenotypes in zebrafish model. *Journal of Cellular Physiology*, *235*(11), pp.7870-7888.
19. (corresponding author) Shurbaji, S., Al-Ruweidi, M.K.A., Ali, F.H., Benslimane, F.M. and **Yalcin, H.C**., 2020. Application of a flow-induced stress wave and investigation of associated injuries on cell monolayers using a parallel plate flow chamber. *Methods and Protocols*, *3*(4), p.65.
20. (corresponding author) Benslimane, F.M., Zakaria, Z.Z., Shurbaji, S., Abdelrasool, M.K.A., Al-Badr, M.A.H., Al Absi, E.S.K. and **Yalcin, H.C**., 2020. Cardiac function and blood flow hemodynamics assessment of zebrafish (Danio rerio) using high-speed video microscopy. *Micron*, *136*, p.102876.
21. (corresponding author) Salman, H.E. and **Yalcin, H.C**., 2020. Advanced blood flow assessment in Zebrafish via experimental digital particle image velocimetry and computational fluid dynamics modeling. *Micron*, *130*, p.102801.
22. Augustine, R., Alhussain, H., Hasan, A., Ahmed, M.B., **Yalcin, H.C**. and Al Moustafa, A.E., 2020. A novel in ovo model to study cancer metastasis using chicken embryos and GFP expressing cancer cells. *Bosnian Journal of Basic Medical Sciences*, *20*(1), p.140.
23. (corresponding author) **Yalcin, H.C**., Benslimane, F.M. and Kawakami, K., 2019. The First International Zebrafish Conference/Workshop in Qatar. *Zebrafish*, *16*(5), pp.493-495.
24. (corresponding author) Benslimane, F.M., Alser, M., Zakaria, Z.Z., Sharma, A., Abdelrahman, H.A. and **Yalcin, H.C**., 2019. Adaptation of a mice doppler echocardiography platform to measure cardiac flow velocities for embryonic chicken and adult zebrafish. *Frontiers in bioengineering and biotechnology*, *7*, p.96.
25. Eisa-Beygi, S., Benslimane, F.M., El-Rass, S., Prabhudesai, S., Abdelrasoul, M.K.A., Simpson, P.M., **Yalcin, H.C**., Burrows, P.E. and Ramchandran, R., 2018. Characterization of endothelial cilia distribution during cerebral-

vascular development in zebrafish (Danio rerio). *Arteriosclerosis, thrombosis, and vascular biology*, *38*(12), pp.2806-2818.

26. (corresponding author) Zakaria, Z.Z., Benslimane, F.M., Nasrallah, G.K., Shurbaji, S., Younes, N.N., Mraiche, F., Da'as, S.I. and **Yalcin, H.C**., 2018. Using zebrafish for investigating the molecular mechanisms of drug-induced cardiotoxicity. *BioMed research international*, *2018*.

27. Alahmad, Y.M., Aljaber, M., Saleh, A.I., **Yalcin, H.C**., Aboulkassim, T., Yasmeen, A., Batist, G. and Moustafa, A.E.A., 2018. Effect of cell-phone radiofrequency on angiogenesis and cell invasion in human head and neck cancer cells. *Head & Neck*, *40*(10), pp.2166-2171.

28. Ashour, A.A., Haik, M.Y., Sadek, K.W., **Yalcin, H.C**., Bitharas, J., Aboulkassim, T., Batist, G., Yasmeen, A. and Al Moustafa, A.E., 2018. Substantial toxic effect of water-pipe smoking on the early stage of embryonic development. *Nicotine and Tobacco Research*, *20*(4), pp.502-507.

29. Saleh, A.I., Mohamed, I., Mohamed, A.A., Abdelkader, M., **Yalcin, H.C.,** Aboulkassim, T., Batist, G., Yasmeen, A. and Moustafa, A.E.A., 2018. Elaeagnus angustifolia plant extract inhibits angiogenesis and downgrades cell invasion of human oral cancer cells via Erk1/Erk2 inactivation. *Nutrition and cancer*, *70*(2), pp.297-305.

30. (corresponding author) **Yalcin, H.C.,** 2018. Hemodynamic studies for analyzing the teratogenic effects of drugs in the zebrafish embryo. In *Teratogenicity Testing* (pp. 487-495). Humana Press, New York, NY.

31. (corresponding author) **Yalcin, H.C.,** Amindari, A., Butcher, J.T., Althani, A. and Yacoub, M., 2017. Heart function and hemodynamic analysis for zebrafish embryos. *Developmental Dynamics*, *246*(11), pp.868-880.

32. Gould, R.A., **Yalcin, H.C**., MacKay, J.L., Sauls, K., Norris, R., Kumar, S. and Butcher, J.T., 2016. Cyclic mechanical loading is essential for Rac1-mediated elongation and remodeling of the embryonic mitral valve. *Current Biology*, *26*(1), pp.27-37.

33. Lindsey, S.E., Menon, P.G., Kowalski, W.J., Shekhar, A., **Yalcin, H.C**., Nishimura, N., Schaffer, C.B., Butcher, J.T. and Pekkan, K., 2015. Growth and hemodynamics after early embryonic aortic arch occlusion. *Biomechanics and modeling in mechanobiology*, *14*(4), pp.735-751.

34. (corresponding author) **Yalcin, H.C.,** 2014. Femtosecond laser photodisruption of vitelline vessels of avian embryos as a technique to study embryonic vascular remodeling. *Experimental biology and medicine*, *239*(12), pp.1644-1652.

35. (corresponding author) Lindsey, S.E., Butcher, J.T. and **Yalcin, H.C**., 2014. Mechanical regulation of cardiac development. *Frontiers in physiology*, *5*, p.318.

36. Bharadwaj, K.N., Spitz, C., Shekhar, A., Yalcin, H.C. and Butcher, J.T., 2012. Computational fluid dynamics of developing avian outflow tract heart valves. *Annals of biomedical engineering*, *40*(10), pp.2212-2227.

37. Henning, A.L., Jiang, M.X., **Yalcin, H.C**. and Butcher, J.T., 2011. Quantitative three-dimensional imaging of live avian embryonic morphogenesis via micro-computed tomography. *Developmental Dynamics*, *240*(8), pp.1949-1957.

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Numerical Simulation of Cardiovascular Flows

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Machine Learning Systems for CVD diagnosis and therapy planning

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Cardiac Tissue Engineering

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Nanomedicine for CVDs

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Cardiac Biomarkers, Biosensors and Microfluidic Systems

77. (corresponding author) Al-Ruweidi, M.K.A., Khater, N., Alkaabi, H.R., Hasan, M. and **Yalcin, H.C**., 2022. Autoimmune Diseases of the GI Tract Part I: Etiology and Pathophysiology. IntechOpen. FROM THE EDITED VOLUME Immunology of the GI Tract, Edited by Luis Rodrigo

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81. (corresponding author) Salman, H.E., Al-Ruweidi, M.K.A., Ouakad, H.M. and **Yalcin, H.C**., 2022. Minimally Invasive and Non-Invasive Sensor Technologies for Predicting Heart Failure: An Overview. *Predicting Heart Failure: Invasive, Non-Invasive, Machine Learning and Artificial Intelligence Based Methods*, pp.109-138.

82. Sadasivuni, K.K., Ouakad, H.M., Al-Maadeed, S., **Yalcin, H.C**. and Bahadur, I.B. eds., 2022. *Predicting Heart Failure: Invasive, Non-Invasive, Machine Learning, and Artificial Intelligence Based Methods*. John Wiley & Sons.

83. Sukumaran, V., Gurusamy, N., **Yalcin, H.C.** and Venkatesh, S., 2021. Understanding diabetes-induced cardiomyopathy from the perspective of renin angiotensin aldosterone system. *Pflügers Archiv-European Journal of Physiology*, pp.1-19.

84. Al-Shamasi, A.A., Elkaffash, R., Mohamed, M., Rayan, M., Al-Khater, D., Gadeau, A.P., Ahmed, R., Hasan, A., Eldassouki, H., **Yalcin, H.C.** and Abdul-Ghani, M., 2021. Crosstalk between Sodium–Glucose Cotransporter Inhibitors and Sodium–Hydrogen Exchanger 1 and 3 in Cardiometabolic Diseases. *International journal of molecular sciences*, *22*(23), p.12677.

85. (corresponding author) **Yalcin, H.C**., Sukumaran, V., Al-Ruweidi, M.K.A. and Shurbaji, S., 2021. Do changes in ace-2 expression affect SARS-CoV-2 virulence and related complications: A closer look into membrane-bound and soluble forms. *International Journal of Molecular Sciences*, *22*(13), p.6703.

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SELECTED CONFERENCE TALKS AS PRESENTER

1. **H. C. Yalcin,** "Disturbed Hemodynamics Prediction in Aortic Diseases Using Machine Learning Approach", Gulf Vascular Society Meeting, Doha, Qatar, November 2023
2. **H. C. Yalcin,** "Computational assessment of wall shear stress, oscillatory shear index, endothelial cell activation potential, and relative residence time, predicts rupture locations for abdominal aortic aneurysms". 7th QU Health Annual Research Symposium. Qatar University, March 2023.
3. **H. C. Yalcin,** "Deep Learning Supported Computational Fluid Dynamics Approach for Risk Prediction in Cardiovascular Diseases". The 7th QU Engineering in Medicine Workshop. Qatar University, February 2023.
4. **H. C. Yalcin,** "Mechanobiology of Cardiovascular Diseases: In vivo, In vitro, Computational Modeling Approaches for Investigation and Advancing Therapies". Invited symposium at Hamad Bin Khalifa University, February 2023.
5. **H. C. Yalcin,** "Disturbed Hemodynamics Prediction in Aortic Diseases using Deep Learning Approach". Biomedical Enginering Society Annual Meeting, San Antonio, Texas USA, October 2022
6. **H. C. Yalcin, "**Computational modelling of cardiovascular hemodynamics as a diagnostic tool**".** Engineering and Bioinformatics for Healthcare Innovation and Development Workshop. April 2022, Qatar University.
7. **H. C. Yalcin,** "Characterization and in vitro/in vivo testing of SPION and PLGA-PEG-PLGA Nanoparticles for Targeted Drug Delivery Applications". World Congress on Sciences and Applied Sciences (WCSAS 2022), April 2022, Qatar University
8. **H. C. Yalcin,** "Mechanobiology of Cardiovascular Diseases: In vivo, In vitro, Computational Modeling Approaches for Investigation and Advancing Therapies". Invited symposium at Koc University, Istanbul Turkey, November 2021.
9. **H. C. Yalcin,** "Mechanobiology of Congenital and Adult Heart Disease". QU Health Cardiovascular Research Symposium, April 2021.
10. **H. C. Yalcin,** H. E. Salman and N. Jurisch-Yaksi. "Computational modeling of motile cilia generated cerebral flow dynamics in zebrafish embryo". 11th European Zebrafish Meeting (Online), October 2020.
11. **H. C. Yalcin**. "Modeling Approaches for Studying Cardiovascular Diseases". Qatar University Workshop on Translational Engineering for Healthcare Innovation and Product Development, October 2020.
12. **H. C. Yalcin**. "Blood flow hemodynamics is a major factor governing the development of cardiovascular disorders". Invited Symposium at University of North Texas, Denton, USA, October 2019.
13. **H. C. Yalcin**. "Assessment of cardiovascular function in Zebrafish using time lapse microscopy and Doppler echocardiography". 14th International Zebrafish Conference, Suzou, China, June 2019.
14. **H. C. Yalcin**. "Time-lapse microscopy and doppler echocardiography-based cardiac function analysis of zebrafish". 13th International Zebrafish Conference, University of Wisconsin, Madison, USA, June 2018.
15. **H. C. Yalcin. "**Functional Validation of Myosin Binding Protein C Mutations in Cardiomyopathy Patients using the Zebrafish Embryo Model". Zebrafish as a Disease Model Workshop, Hacettepe University, Ankara, Turkey, April 2018.

16. **H. C. Yalcin**. "Mechanobiology of cardiovascular diseases". The 1st New York University Abu Dhabi Biomedical and Biosystems Conference, New York University Abu Dhabi, April 2017.
17. **H. C. Yalcin,** A. Amindari, K. Kirkkopru, and M. Yacoub. "Patient Specific Numerical Modeling of Diseased Aortic Valve Hemodynamics using Fluid-Structure Interaction Approach". Annual Scientific Meeting of the Heart Valve Society , Monaco, France, March 2017.
18. **H. C. Yalcin**, R.A. Gould and J. T. Butcher. "Hemodynamic forces control ventricular and valvular growth independent of sidedness during embryonic development". Biomedical Engineering Society Conference, Seattle WA USA, September 2013.
19. **H. C. Yalcin**. "Influence of Blood Flow on Abnormal Heart Development". INOVITA Seminar, Institute of Biomedical Engineering, Bhosphorus University, Turkey, October 2012.
20. **H. C. Yalcin**. "Computational and Experimental Techniques to Study Congenital Heart Defects". A Short Course on Biomedical Engineering, KOC University, İstanbul, May 30 2012.
21. **H. C. Yalcin**, S Ajaeb and J. T. Butcher. "Regulation of Abnormal Atrioventricular Valve Development. 5th Biennial Conference on Heart Valve Biology and Tissue Engineering, Myconos Island, Greece, May 2012.
22. **H. C. Yalcin**, and J. T. Butcher. "Hemodynamic Patterning of Normal and Abnormal Heart Development". American Association of Veterinary Anatomists Meeting, Cornell University, USA, August 2011.
23. **H. C. Yalcin**, A. Shekhar, N. Nishimura, C. B. Schaffer and J. T. Butcher. "Congenital Heart Defects Models via Non-invasive Femtosecond-laser Photoablation of Embryonic Outflow Tract", American Heart Association Annual Meeting at Chicago IL USA, November 2010.
24. **H. C. Yalcin**, A. Shekhar, K. Bharadwaj, and J. T. Butcher. "Hemodynamic Patterning of Avian Embryonic Valves." Biomedical Engineering Society Conference, Austin TX USA, October 2010.
25. **H. C. Yalcin**, A. Shekhar, N. Nishimura, C. B. Schaffer and J. T. Butcher. "Non-invasive Femtosecond-laser Photoablation of Embryonic Outflow Tract: Microsurgical Congenital Heart Defect Models", 4th Biennial Heart Valve Biology and Tissue Engineering Conference, Hilton Head Island, SC USA on March 2010.
26. **H. C. Yalcin**, A. Shekhar, N. Nishimura, C. B. Schaffer and J. T. Butcher . "A Noninvasive In Vivo Embryonic Valvular Defect Model via Femtosecond Laser Photoablation, Biomedical Engineering Society Conference, Pittsburgh PA USA, October 2009.
27. **H. C. Yalcin**, A. Shekhar, N. Nishimura, C. B. Schaffer and J. T. Butcher. "A Noninvasive Defect Model of Congenital Heart Disease via Pulsed Laser Photoablation", 5th Biennial Meeting of the Society of Heart Valve Disease, Berlin Germany, June 2009.
28. **H. C. Yalcin** and S. Ghadiali. "Effects of Inflammatory Mediators and Fluid Properties on Cellular Responses to Airway Reopening", Biomedical Engineering Society Conference, Chicago IL USA, October 2006.
29. **H. C. Yalcin** and S. Ghadiali. "Influence of Microchannel Geometry on Cellular Injury during Microbubble flows", American Society of Mechanical Engineers Summer Bioengineering Conference, Amelia Island FL USA, June 2006.
30. **H. C. Yalcin**, J. Wang, S. Ghadiali and H. D. Ou-Yang. "Using Optical Tweezers to Study Cell Mechanics during Airway Reopening", American Physical Society March Meeting, Baltimore MD USA, March 2006.
31. **H. C. Yalcin**, S. D. Preite, and S. Ghadiali. "Influence of Cellular Morphology and Mechanics on Injury Patterns during Airway Reopening", Biomedical Engineering Society Conference, Baltimore MD USA, October 2005.