

Selected Publications:

Book Chapters

1. **Dinish U. S***, Malini Olivo, "Biomedicine with surface enhanced Raman scattering", chapter 24 in the book '**Handbook of Photonics for Biomedical Engineering**, Springer Publishers, ISBN: 978-94-007-6174-2, 2015
2. Ho Jun Hui, Neal Burton, Stefan Morscher, **Dinish U. S.**, Josafine Reber, Vasilis Ntziachristos, **Malini Olivo**, "Advances in optoacoustic imaging: From bench side to clinic", Chapter 3 in the book 'Frontiers in Biophotonics for Translational Medicine', Springer Publisher Volume 3, Progress in Optical Science and Photonics, 75-109, ISBN 978-981-287-627-0, 2015
3. Ho Jun Hui, **Dinish U. S.**, Malini Olivo, "Optical Contrast Agents for Imaging, Biosensing and Therapy", in the book 'Optics Encyclopedia', Wiley Publishing, 1-19. DOI: 10.1002/9783527600441.oe1010, 2015
4. Kho K.W., **Dinish U. S.**, Malini Olivo, "Clinical application of SERS", chapter 5 in the book, 'Biophotonics for medical applications' Woodhead Publishing, ISBN: 9780857096623, 2015

Journal Publications

1. Weng-I Katherine Chio, Jia Liu, Tabitha Jones, Jayakumar Perumal, **Dinish U. S.**, Ivan P. Parkin, Malini Olivo, Tung-Chun Lee, "SERS multiplexing of methylxanthine drug isomers via host-guest size matching and machine learning" (Under review)
2. Jayakumar Perumal, Kapil Dev, Lee Pyng, Lim Hann Qian **Dinish U. S.**, Malini Olivo, "Label free SERS based pattern recognition method to Identify and distinguish pleural effusions of Lung cancer patients from that of controls", (Under review)
3. Kapil Dev, Ho Jun Hui, Bi Renzhe, Amalina Binte Ebrahim Attia, Yew Yik Weng, **Dinish U. S.**, Steven Thng, Malini Olivo, "Machine learning assisted handheld confocal Raman micro-spectroscopy for identification of clinically relevant atopic eczema biomarkers", (Under review)
4. Jayakumar Perumal, Lim Hann Qian, Amalina Attia, Riazul Raziq, David Ian Leavesley, Zee Upton, **Dinish U. S.**, Malini Olivo "Novel cellulose fiber-based flexible plasmonic membrane for point-of-care SERS biomarker detection in chronic wound healing", *Int. J. Nanomedicine*, (Final review)
5. Amalina Binte Ebrahim Attia, Mohesh Moothanchery, Xiuting Li, Yik Weng Yew, Steven Tien Guan Thng, **U. S. Dinish*** and Malini Olivo*, "Microvascular Imaging and Monitoring of Hemodynamic Changes in the Skin during Arterial-Venous Occlusion using Multispectral Raster-scanning Optoacoustic Mesoscopy", *Photoacoustics* (Final review)
6. Sojeong Park, Shier Nee Saw, Xiuting Li Mahsa Paknezhad, David Coppola, **Dinish U. S.**, Amalina Binte Ebrahim Attia, Yew Yik Weng, Steven Thng Tien Guan, Hwee Kuan Lee, and Malini Olivo, "Model Learning Analysis of 3D Optoacoustic Mesoscopic Images for the Classification of Atopic Dermatitis" *Biomedical Optics Express*, <https://doi.org/10.1364/BOE.415105>, 2021

7. Jayakumar Perumal, Yusong Wang, Amalina Binte Ebrahim Attia, **U. S. Dinish**^{*} and Malini Olivo^{*}, "Towards a point-of-care SERS sensor for biomedical and agri-food analysis applications: a review of recent advancements", invited review, **Nanoscale**, **13**, 553-580, 2021.
8. Weng-I Katherine Chio, Suresh Moorthy, Jayakumar Perumal, **Dinish U. S.**, Ivan P. Parkin, Malini Olivo, and Tung-Chun Lee, "Dual-triggered nanoaggregates of cucurbit [7]uril and gold nanoparticles for multi-spectroscopic quantification of creatinine in urinalysis", **J. Materials Chemistry C**, <https://doi.org/10.1039/D0TC00931H>, 2020
9. Flavien Beffara, Humbert Georges^{*}, Jean-Louis Auguste, Jayakumar Perumal, **U. S. Dinish**^{*}, Malini Olivo^{*}, "Optimization and Performance Analysis of SERS-active Suspended Core Photonic Crystal Fiber", **Optics Express**, **28** (16), 23609-23619, <https://doi.org/10.1364/OE.393251>, 2020
10. Yik Weng Yew¹, **Dinish U. S**¹, Li Xiuting, Kapil Dev, Amalina Binte Ebrahim Attia, Renzhe Bi, Mohesh Moothanchery, Ghayathri Balasundaram, Juan Aguirre, Vasilis Ntziachristos, Malini Olivo, Steven Tien Guan Thng: "Raster-scanning optoacoustic mesoscopy (RSOM) Imaging as an objective disease severity tool in atopic dermatitis patients" **(1:- Equal contribution and joint first authors)** **J. American Academy of Dermatology**, doi: 10.1016/j.jaad.2020.06.045, 2020 *(1:- Equal contribution and joint first authors)*
11. Chris Jun Hui Ho¹, Yik Weng Yew¹, **Dinish U. S**¹, Amanda Hui Yu Kuan, Melvin Kai Weng Wong, Renzhe Bi, Kapil Dev, Xiuting Li, Gurpreet Singh, Mohesh Moothanchery, Jayakumar Perumal, Malini Olivo, Steven Tien Guan Thng: "Handheld Confocal Raman Spectroscopy (CRS) for Objective Assessment of Skin Barrier Function and Stratification of Severity in Atopic Dermatitis (AD) Patients" **J. Dermatological Sciences**, DOI: <https://doi.org/10.1016/j.jdermsci.2020.02.001>; 2020 *(1:- Equal contribution and joint first authors)*
12. Flavien Beffara, Jayakumar Perumal, Jean-Louis Auguste, Sylvain Vedraine, Aniza Puteri Mahyuddin, Mahesh Choolani, Humbert Georges^{*}, **U. S Dinish**^{*}, Malini Olivo^{*}, Development of highly reliable and sensitive SERS-active photonic crystal fiber probe, and its application for the detection of ovarian cancer biomarker in biofluid", **J. Biophotonics**, <https://doi.org/10.1002/jbio.201960120>, 2019
13. Amalina Binte Ebrahim Attia, Ghayathri Balasundaram, Mohesh Moothanchery, **U.S. Dinish**, Renzhe Bi, Vasilis Ntziachristos, Malini Olivo. "A Review of Clinical Photoacoustic Imaging: Current and Future Trends," **Photoacoustics**, DOI: <https://doi.org/10.1016/j.pacs.2019.100144>, 2019
14. Yik Weng Yew¹, **U. S Dinish**¹, Renzhe Bi, Chris Jun Hui Ho, Kapil Dev, Xiuting Li, Amalina Binte Ebrahim Attia, Melvin Kai Weng Wong, Ghayathri Balasundaram, Vasilis Ntziachristos, Malini Olivo, Steven Tien Guan Thng, "Investigation of Morphological, Vascular and Biochemical Changes in the Skin of an Atopic Dermatitis (AD) Patient in Response to Dupilumab Using Raster Scanning Optoacoustic Mesoscopy (RSOM) and Handheld Confocal Raman Spectroscopy (CRS)" **J. Dermatological Sciences**, DOI: <https://doi.org/10.1016/j.jdermsci.2019.07.003>; 2019 *(1:- Equal contribution and joint first authors)*
15. Tingting Wu, Kaiwei Li, Nan Zhang, Juan Xia, Qingsheng Zeng, Xinglin Wen, **U. S. Dinish**, Malini Olivo, Zexiang Shen, Zheng Liu, Qihua Xiong, Yu Luo, Stefan A. Maier, Lei Wei, "Ultra-wideband Surface Enhanced Raman Scattering in Hybrid Graphene Fragmented-gold Substrates via Cold-etching", **Advanced Optical Materials**, <https://doi.org/10.1002/adom.201900905>, 2019

16. Xiuting Li¹, **U. S Dinish**¹., Juan Aguirre¹, Renzhe Bi, Kapil Dev, Amalina Binte Ebrahim Attia, Suhanyaa Nitkunanantharajah, Lim Hann Qian, Yik Weng Yew, Mathias Schwarz, Steven Thng Tien Guan, Vasilis Ntziachristos*, Malini Olivo, Malini Olivo*, "Optoacoustic Mesoscopy Analysis and Quantitative Estimation of Imaging Specific Metrics in Fitzpatrick skin phototypes II to V", **J. Biophotonics**, (in press DOI: 10.1002/jbio.201800442) (1:- Equal contribution and joint first authors); **with front cover art**
17. **U. S Dinish***, Flavien Beffara, Humbert Georges*, Jean-Louis Auguste, Malini Olivo*, "SERS Active Photonic Crystal Fiber Probe: Towards Next Generation Liquid Biopsy Sensor with Ultra High Sensitivity", **J. Biophotonics**, invited Review, DOI: 10.1002/jbio.201900027, 2019 **with front cover art**
18. Renzhe Bi¹, **U. S Dinish**¹, Chi Ching Goh¹, Toru Imai, Mohesh Moothanchery, Xiuting Li, Jin Young Kim, Seungwan Jeon, Yang Pu, Chulhong Kim, Lai Guan Ng, Lihong Wang, Malini Olivo, "In vivo label free functional photoacoustic monitoring of ischemic reperfusion", **J. Biophotonics**, (in press DOI: 10.1002/jbio.201800454) (1:- Equal contribution and joint first authors) **with front cover art**
19. Jayakumar Perumal, Aniza P. Mahyuddin, Ghayathri Balasundaram, Douglas Goh, **U. S Dinish**, Mahesh Choolani, Malini Olivo, "SERS Based Detection of Haptoglobin in Ovarian Cyst Fluid as a Point of Care Diagnostic Assay for Epithelial Ovarian cancer", **Cancer Management and Research** 11, 1115-1124; DOI : <https://doi.org/10.2147/CMAR.S185375>, 2019
20. Jayakumar Perumal, **Dinish U. S***, Anne Kathrin Bendtt, Agne Kazakeviciute, Chit Yaw Fu, Irvine Lian Hao Ong, Malini Olivo*, "Identification of mycolic acid forms using SERS as a fast detection method for Tuberculosis", **Int. J. Nanomedicine**, Oct 4;13:6029-6038. doi: 10.2147/IJN.S171400, 2018
21. Kapil Dev, **U. S Dinish**^{1*}, Smarajit, Shigeki Sugii, Stefan Anderson-Engels, Malini Olivo*, "Diffuse Reflectance Spectroscopy in NIR II Window for In-vivo Quantitative Adipose Tissue Browning", **J. Biophotonics**, DOI: 10.1002/jbio.201800135 (2018), (1:- Equal contribution and joint first authors)
22. Li Kaiwei, Zhang Nan, Zhang Ting, Wang Zhe, Chen Ming, Wu Tingting, Ma Shaoyang, Zhang Mengying, Zhang Jing, **U. S Dinish**, Shum Ping, Olivo Malini, Wei Lei, "Ultra-flexible, conformal, and nano-patterned photonic surfaces via polymer cold-drawing", **J. Mater Chem C**, 6, 4649-4657, 2018
23. Dongdong Su, Chai Lean Teoh, Sung-Jin Park, Jong-Jin Kim, Animesh Samanta, **Dinish U. S.**, Renzhe Bi, Malini Olivo and Young-Tae Chang "ElaNIR: a Near-Infrared Zwitterionic Fluorescence Probe for *in vivo* Elastin Imaging" **Chem- cell press** 4 (5), 1128–1138, (2018)
24. Gurpreet Singh, Renzhe Bi, **U. S. Dinish**, Malini Olivo, "Generating Localized Plasmonic Fields on an Integrated Photonic Platform using Tapered Couplers for Biosensing Applications" **Scientific Reports**, 17-21699 (2017)
25. Jayakumar Perumal, Gong Tianxun, **U. S. Dinish**, Malini Olivo, "Development of optimized nanogap Plasmonic Substrate for improved SERS Enhancement", **AIP Advances** 7(5), 055017 (2017).
26. Amalina Binte Ebrahim Attia, Sai Yee Chuah, Daniel Razansky, Chris Jun Hui Ho, Pinky Malempati, **Dinish U.S.**, Renzhe Bi, Chit Yaw Fu, Steven J. Ford, Joyce Siong See Lee, Wee Ping Tan, Malini Olivo, Steven Thng, "Noninvasive Real-time Characterization of Non-

melanoma Skin Cancers with Handheld Optoacoustic Probes,” *Photoacoustics*, 7, 20-26 (2017).

27. Douglas Goh, Kong K.V, Jayakumar P, Tainxun Gong, **Dinish U. S.**, Malini Olivo “Quantification of Protein Biomarker Using SERS Nano-Stress Sensing with Peak Intensity Ratiometry”, *Journal of Molecular and Engineering Materials*, 2017, doi.org/10.1142/S2251237316400116
28. **Dinish U. S.**, Wong Chi Lok, Sandhya Sriram, Ghayathri B, Ong Wee Kiat, Shigeki Sugii, Malini Olivo, “Diffuse Optical Spectroscopy and Imaging to Detect and Quantify Adipose Tissue Browning”, *Scientific Reports*, 7, 41357 (2017)
29. **U. S Dinish**, Zhegang Song, Chris Jun Hui Ho, Ghayathri Balasundaram, Amalina Binte Ebrahim Attia, Xianmao Lu, Ben Zhong Tang, Bin Liu, Malini Olivo, “Single Molecule with Dual Function on Nano-gold: Biofunctionalized Construct for *in vivo* Photoacoustic Imaging and SERS Biosensing”, *Advanced Functional Materials* 25, 2316-2325, (2015)
30. Wong Chi Lok, **Dinish U. S.**, Malini Olivo, “Recent advances in SPR and SERS for sensitive translational medical diagnosis, *Photonics & Lasers in Medicine*, Invited Review Paper, 4, 119–149 (2015)
31. Ghayathri Balasundaram, Chris Jun Hui Ho, Kai Li, Wouter Driessen, **Dinish U. S.**, Chi Lok Wong, Vasilis Ntziachristos, Bin Liu, Malini Olivo. “Molecular Photoacoustic Imaging of Breast Cancer using an Actively Targeted Conjugated Polymer” *Int. J. Nanomedicine*, 10, 387-397 (2015)
32. Chi Lok Wong, **U.S. Dinish**, Kavitha Devi Buddharaju, Michael Stenbæk Schmidt and Malini Olivo, “Surface Enhanced Raman Scattering (SERS) based Volatile Organic Compounds (VOCs) Detection using Plasmonic Bimetallic Nanogap Substrate”, *Applied Physics A*, 117 (2), 687-692, (2014)
33. Wong Chi Lok¹, **Dinish U. S¹**, Michael Schmidt, Malini Olivo, “Non-labeling Multiplex Surface Enhanced Raman Scattering (SERS) Detection of Volatile Organic Compounds (VOCs)”, *Analytica Chimica Acta*, 844, 54-60, (2014), (1:- Equal contribution and joint first authors)
34. Chris Ho, Ghayathri B, Wouter Driessen, Ross McLaren, Wong Chi Lok, **Dinish U. S.**, Amalina Binte Ebrahim Attia, Vasilis Ntziachristos, Malini Olivo, “Multifunctional photosensitizer-based contrast agents for photoacoustic imaging”, *Scientific Reports*, 4, 5342 (2014)
35. **Dinis U. S.**, Ghayathri Balasundaram, Young-Tae Chang, Malini Olivo, “Actively Targeted *in vivo* Multiplex Detection of Intrinsic Cancer Biomarkers in a Murine Model Using Biocompatible SERS Nanotags”, *Scientific Reports*, 4, 4075 (2014)
36. Jayakumar P, Kong K.V, **U. S. Dinish**, Reuben B, Malini Olivo, “Design and fabrication of random silver films as substrate for SERS based nano-stress sensing of proteins”, *RSC Advances*, 4, 12995–13000 (2014)
37. Kong Kien Voon, **Dinish U. S.**, Weber Kam On Lau, Malini Olivo, “Sensitive SERS-pH Sensing in Biological Media Using Metal Carbonyl Functionalized Planar Substrates”, *Biosensors and Bioelectronics*, 54, 135-140 (2014)
38. **U. S. Dinish***, Ghayathri B, Young Tae Chang, Malini Olivo, “Sensitive multiplex detection of serological cancer biomarkers using SERS-active photonic crystal fiber probe”, *J. Biophotonics* 7, 956–965, (2014)

39. Stefano Vavassori, Anil Kumar, Gan Siok Wan, Gundimeda S. R, Marco Cavallari, Sary El Daker, Travis Beddoe, Alex Theodossis, N. K. Williams, Emma Gostick, D. A. Price, **Dinish U. S.**, Kong Kien Voon, Malini Olivo, Jamie Rossjohn, Lucia Mori, Gennaro De Libero, "Butyrophilin 3A1 binds phosphorylated antigens and stimulates human $\gamma\delta$ T cells", ***Nature Immunology***, 14 (9), 908-916, (2013)
40. Tian Xun G, Malini Olivo, **U. S. Dinish**, Douglas Goh, Kong Kien Voon, K. T. Yong, "Engineering bioconjugated gold nanospheres and gold nanorods as plasmon scattering probes for ultrasensitive multiplex dark-field imaging of cancer cells", ***Journal of Biomedical Nanotechnology***, 9, 1-7, (2013)
41. **U. S. Dinish***, Douglas Goh, Fu C.Y, Bhuvaneswari R, Winston Sun, Malini Olivo, "Optimized synthesis of PEG-encapsulated gold nanorods for improved stability and its application in OCT imaging with enhanced contrast", ***Plasmonics***, 8 (2), 591-598, (2013)
42. K. W. Kho, **U. S. Dinish**, Anil Kumar, Malini Olivo, "Frequency shift in SERS for biosensing", ***ACS Nano*** 6 (6) , 4892-4902, (2012)
43. Douglas Goh, Tian Xun G, **U. S. Dinish***, Chit Yaw Fu, Maiti, K.K, K. T. Yong, Malini Olivo, "Pluronic triblock copolymer functionalized gold nanorods as biocompatible localized plasmon resonance enhanced scattering probes for dark-field imaging of cancer cells", ***Plasmonics***, 7(4), 595-601, (2012)
44. C.Y. Fu, K.W. Kho, **U. S. Dinish**#, Z.Y. Koh, Malini Olivo, "Enhancement in SERS Intensity with hierarchical nanostructures by bimetallic deposition approach", ***Journal of Raman Spectroscopy***, 43, 977-985, (2012) (#:- joint 2nd author)
45. K. K. Maiti¹, **U. S. Dinish**¹, Animesh Samanta, Marc Vendrell, Kiat-Seng Soh, Sung Jin Park, Malini Olivo, Y. T Chang, "Multiplex Targeted *in vivo* cancer detection using sensitive near-infrared SERS nanotags", ***Nano Today***, 7, 85-93 (2012) (1:- Equal contribution and joint first authors)
46. Ravi Kumar K, **U. S. Dinish**, Chit Yaw Fu, Gopalkrishna Hegde, Malini Olivo, Anand Asundi. "Nano-sphere templated metallic grating assisted enhanced fluorescence", ***Journal of Fluorescence***, 22 (2), 609-614, (2012)
47. **Dinish U. S***, Chit Yaw Fu, Kiat Seng Soh, R. Bhuvaneswari, Anil Kumar, Malini Olivo, "Highly sensitive SERS detection of cancer proteins in low sample volume using hollow core photonic crystal fiber", ***Biosensors and Bioelectronics***, 33(1), 293-298, (2012)
48. A. Samanta, K. K. Maiti, K.S. Soh, X. Liao, M. Vendrell, **U. S. Dinish**, SW. Yun, R. Bhuvaneswari, H. Kim, S. Rautela, J. Chung, M. Olivo, Y. T Chang. "Ultrasensitive near-infrared Raman reporters for SERS-based *in vivo* cancer imaging", ***Angewandte Chemie Int Ed***, 50, 6089-92, (2011)
(K.W. Kho, C.Y. Fu, **U. S. Dinish**, Malini Olivo, "Clinical SERS: are we there yet?", Invited Review in ***Journal of Biophotonics***, 4, 667-684, (2011), **Cover page Article**)
49. **U. S. Dinish**, Fu C. Y., A. Agarwal, M. Olivo, "Development of highly reproducible nanogap SERS substrates: comparative performance analysis and its application for glucose sensing", ***Biosensors and Bioelectronics***, 26, 1987-1992, (2011)
50. Maiti K K, **U. S. Dinish**, Fu C Y, J. J Lee, S. K. Seng, B. Ramaswamy, Olivo M, Chang Y T. "Development of biocompatible SERS nanotag with increased stability by chemisorption

of reporter molecule for *in vivo* cancer detection”, *Biosensors and Bioelectronics*, 26(2), 398-403, (2010)

51. Cho S. J, Ahn Y. H, Maiti K. K, U. S. Dinish, Fu C. Y, Thoniyot P, Olivo M, Chang Y. T “Combinatorial synthesis of a triphenylmethine library and their application in the development of surface enhanced Raman scattering (SERS) probes”, *Chemical Communications*. 7, 46(5), 722-724, (2010)
52. Nair, K.P.R., Lee, T., Ravi, J., Lekshmi, S., Rajmohan, S., **Dinish, U. S.**, Rasheed, T.M.A., “A compact photothermal deflection setup for determination of thermal diffusivity”, *Asian Journal of Spectroscopy*, 11, 143-149, (2007)
53. U. S. Dinish, P. Gulati, V. M. Murukeshan, L.K. Seah, “Diagnosis of colon cancer using frequency domain fluorescence imaging technique”, *Optics Communications*, 271(1), 291-301, (2007)
54. Chao Z.X, Seah L.K, Murukeshan V.M, Dinish U. S., Tan C.S, “An integrated phase-resolved fluorescence imaging system with sub-nanosecond lifetime resolution”, *Optics & Laser Technology*, 39 (4), 864-870, (2007)
55. U. S. Dinish*, C. Y. Fu, Z. X. Chao, L. K. Seah, V. M. Murukeshan, B. K. Ng, “Sub-nanosecond resolution phase-resolved fluorescence imaging technique for biomedical applications”, *Applied Optics*, vol. 45, issue 20, 5020-5026, (2006)
56. Chao Z.X, Seah L.K, Murukeshan V.M, Dinish U. S., “Sensitivity improvement for phase-resolved fingerprint imaging by combining even-step pi-shift methods”, *Measurement Science & Technology*, 17, 684-688, (2006)
57. L.K Seah, Dinish U. S., Z.X Chao, Murukeshan V.M, “Phase-resolved optical technique with heterodyne signal processing for the imaging of latent fingerprints: theoretical and experimental Analysis”, *Journal of Modern Optics*, 53(12), 1809-1817, (2006)
58. Dinish U. S., Chao Z.X, L.K Seah, A. Singh, Murukeshan V.M, “Formulation and implementation of phase-resolved optical technique for latent fingerprint imaging: Theoretical and experimental Analysis”, *Applied Optics*, 44(3), 297-304, (2005)
59. L.K Seah, Dinish U. S., W. Phang, Z.X Chao, Murukeshan V.M, “Fluorescence optimization and lifetime studies of fingerprints treated with magnetic powders”, *Forensic Science International* 152(2-3), 249-257, (2005)
60. Dinish U. S*, Z. X Chao, L.K Seah, L.S Ong, Murukeshan V.M, “Nanosecond resolution in fingerprint imaging using optical technique”, *International Journal of Nanoscience*, 4(4), 695-700, (2005)
61. Chao Z.X, Dinish U. S., Seah L.K, Murukeshan V.M, “Homodyne and heterodyne signal processing assisted phase resolved optical technique for latent fingerprint imaging: a theoretical study”, *Journal of Modern Optics*, 52(1), 119-129, (2005)
62. Dinish U. S., Chao Z.X, Murukeshan V.M, Seah L.K, “Homodyne assisted multi-step phase shifting in phase-resolved optical technique for latent fingerprint imaging”, *Optical Engineering*, 43(12), 2381-2382, (2004)
63. Seah L.K, Dinish U. S., Ong S.K, Chao Z.X, Murukeshan V.M, “Time-resolved imaging of latent fingerprints with nanosecond resolution”, *Optics & Laser Technology*, 36(5), 371-376 (2004)

64. **Dinish U. S**, Seah L.K, Murukeshan V.M, Ong L.S, “Theoretical analysis of phase-resolved fluorescence emission from fingerprint samples”, ***Optics Communications***, 223 (1-3), 55-60 (2003)

Patents/Patent Applications

1. “Integrated non-invasive optical sensor and imaging systems for plant phenotyping”, Singapore patent application number 10202009155S, Sept 18, 2020
2. “SERS spectra based pattern recognition methods to distinguish serums from cancer patients and controls” (TD submitted to A*STAR Singapore)
3. “Novel Design of Optical Fiber for Sensing Analytes”, (TD submitted to A*STAR)
4. SERS active opto-fluidic photonic crystal fiber (PCF) probe as biopsy needle (WO2019004944A1, Jan 2019)
5. “Method for preparing a surface enhanced Raman spectroscopy particle” US patent (US, 10,215,702 B2), Feb 26, 2019
6. Method and System for in vivo Detection of Adipose Tissue Browning”, WO 2019/139541 A1
7. “Optical probe, Raman spectroscopy system, and method of using the same” WO2018182537
8. “System for optical measurements and operation method” International Filing No: WO2018182535A1, Oct 4th, 2018
9. “Single Molecule with Dual Functions: Biofunctionalized Nano-Construct for In Vivo Photoacoustic Imaging and SERS Biosensing” (ETPL Ref: SBIC/Z/09025; US Provisional Patent Application No. 62/177,388, (Filed on Mar 12, 2015)
10. “Multifunctional photosensitizer-based contrast agents for photoacoustic imaging” Technical Disclosure, ETPL Ref: SBIC/Z/08013, Aug 2013, Singapore, Ref No 201309067-5, Dec 2013
11. “Multiplex Volatile Organic Compounds (VOCs) Detection with Surface Enhanced Raman Scattering (SERS)”, Technical Disclosure, ETPL Ref: SBIC/Z/08013, Aug 2013, Singapore
12. “A Photonic Crystal Fiber Sensor”, International Patent No: WO2011155901
13. “Development of Photo Stable Near-IR Cyanine Dyes for *in vivo* Imaging”, International Filing No: WO 2011119114
14. “Method for preparing a surface enhanced Raman spectroscopy particle”, US Patent 20130196057A1
15. “Method and apparatus for imaging latent fingerprints”, (US patent No: 7154661)