

Stanford



Run Zhang Shi

Clinical Associate Professor, Pathology

CLINICAL OFFICE (PRIMARY)

- **Stanford Clinical Lab at Hillview**

3375 Hillview Ave Ste 2101

MC 5627

Palo Alto, CA 94304

Tel (650) 725-2080

Fax (650) 724-8280

ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

Email rzshi@stanford.edu

Tel 650-725-2080

Bio

CLINICAL FOCUS

- Pathology
- Clinical immunology lab
- Therapeutic drug monitoring
- Steroid hormones
- Tumor markers
- Infectious disease serology
- Trace and toxic elements
- Clinical diagnostic protein electrophoresis
- Allergy tests
- Quality improvement, quality control, quality assurance

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Pathology

PROFESSIONAL EDUCATION

- Fellowship: Medical College Of Wisconsin (2006) WI
- PhD Training: University of Sydney (1996) Australia
- Board Certification: Clinical Chemistry, American Board of Clinical Chemistry (2008)
- Ph.D., The University of Sydney , Biochemistry (1997)
- M.D., Shanghai Medical University , Medicine (1987)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Clinical chemistry and therapeutic drug monitoring;

adult and pediatric clinical endocrine testing;

screening, detection and follow up of multiple myeloma;

tumor markers;

clinical utility of tandem mass spectrometry and high resolution mass spectrometry.

CLINICAL TRIALS

- Chromogranin A as Blood Marker in Cancer Patients, Not Recruiting

PROJECTS

- Steroid testing by LC tandem mass spectrometry

Publications

PUBLICATIONS

- **An up-conversion fluorescence lateral-flow immunoassay for rapid detection of Daratumumab in serum protein electrophoresis clinical samples.** *Clinica chimica acta; international journal of clinical chemistry*
Liu, Y., Tao, Y., Yeung, P. S., Lu, M., Liu, J., Yu, F., Shi, R., Yiqi Luo, R.
2024; 119677
- **Study of #1-transferrin and #2-transferrin using microprobe-capture in-emitter elution and high-resolution mass spectrometry.** *Scientific reports*
Luo, R. Y., Pfaffroth, C., Yang, S., Hoang, K., Yeung, P. S., Zehnder, J. L., Shi, R. Z.
2023; 13 (1): 14974
- **Comparison of nucleocapsid antigen with strand-specific reverse-transcription PCR for monitoring SARS-CoV-2 infection.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Chang-Graham, A. L., Sahoo, M. K., Huang, C., Solis, D., Sibai, M., August, G., Calayag, L., Kenji, O. M., Shi, R. Z., Mostafa, H. H., Lei, G. S., Relich, R. F., Pinsky, et al
2023; 164: 105468
- **Mass spectrometry quantitation of immunosuppressive drugs in clinical specimens using online solid-phase extraction and accurate-mass full scan-single ion monitoring.** *Journal of mass spectrometry and advances in the clinical lab*
Yeung, P. S., Miller, P., Lai-Nyugen, T. B., Cheng, P., Ibrahim, A., Shi, R., Bowen, R. A., Luo, R. Y.
2023; 28: 99-104
- **Chromogranin A as Surveillance biomarker in Patients with cARcinoids (CASPAR).** *American Society of Clinical Oncology Annual Meeting*
Qing, M., Halfdanarson, T. R., Bornhorst, J., Jann, H., Shaheen, S., Shi, R., Halperin, D. M.
ASCO.2023
- **Neutral-Coating Capillary Electrophoresis Coupled with High-Resolution Mass Spectrometry for Top-Down Identification of Hemoglobin Variants.** *Clinical chemistry*
Luo, R. Y., Wong, C., Xia, J. Q., Glader, B. E., Shi, R., Zehnder, J. L.
2022
- **A Spurious Positive Result on the Abbott Architect 4th generation HIV Ag/Ab Combo Assay in a Low-Risk Patient.** *Clinica chimica acta; international journal of clinical chemistry*
Pepper, M. A., Wiredja, D. D., Patel, P. M., Stevens, B. A., Pinsky, B. A., Shi, R. Z.
2022
- **Long Term Accuracy of SARS-CoV-2 Interferon-# Release Assay and its Application in Household Investigation.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*

- Murugesan, K., Jagannathan, P., Altamirano, J., Maldonado, Y. A., Bonilla, H. F., Jacobson, K. B., Parsonnet, J., Andrews, J. R., Shi, R. Z., Boyd, S., Pinsky, B. A., Singh, U., Banaei, et al
2022
- **Case-Control Study of Individuals with Discrepant Nucleocapsid and Spike Protein SARS-CoV-2 IgG Results.** *Clinical chemistry*
Wang, H. n., Wiredja, D. n., Yang, L. n., Bulterys, P. L., Costales, C. n., Röltgen, K. n., Manalac, J. n., Yee, J. n., Zehnder, J. n., Shi, R. Z., Boyd, S. D., Pinsky, B. A.
2021
 - **Pre-Operative Anti-Thyroid Antibodies in Differentiated Thyroid Cancer.** *Endocrine practice : official journal of the American College of Endocrinology and the American Association of Clinical Endocrinologists*
Noel, J. E., Thatipamala, P., Hung, K. S., Chen, J., Shi, R. Z., Orloff, L. A.
2021
 - **Performance evaluation and optimized reporting workflow for HIV diagnostic screening and confirmatory tests in a low prevalence setting.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Wiredja, D., Ritchie, T. A., Tam, G., Hogan, C. A., Pinsky, B., Shi, R. Z.
2021; 145: 105020
 - **Simultaneous analysis of E1 and E2 by LC-MS/MS in healthy volunteers: estimation of reference intervals and comparison with a conventional E2 immunoassay.** *Journal of chromatography. B, Analytical technologies in the biomedical and life sciences*
van Winden, L. J., Kok, M., Acda, M., Dezentje, V., Linn, S., Shi, R. Z., van Rossum, H. H.
2021; 1178: 122563
 - **Plasma as an alternative COVID-19 diagnostic specimen in a hospitalized patient negative for SARS-CoV-2 by nasopharyngeal swab.** *Diagnostic microbiology and infectious disease*
Lawrence, L. n., Stevens, B. A., Sahoo, M. K., Huang, C. n., Yamamoto, F. n., Röltgen, K. n., Wirz, O. n., Zehnder, J. n., Shi, R. Z., Boyd, S. D., Schoolnik, G. n., Pinsky, B. A., Hogan, et al
2021; 100 (3): 115365
 - **Evaluation of SARS-CoV-2 total antibody detection via a lateral flow nanoparticle fluorescence immunoassay.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Sibai, M. n., Solis, D. n., Röltgen, K. n., Stevens, B. A., Mfuh, K. O., Sahoo, M. K., Shi, R. Z., Zehnder, J. n., Boyd, S. D., Pinsky, B. A.
2021; 139: 104818
 - **Plasmapheresis as an Early Treatment for Severe Hypertriglyceridemia, Acute Pancreatitis, and Diabetic Ketoacidosis.** *AACE Clinical Case Reports*
Kravetz, A. M., Sanghavi, P., Bhargava, V., Shi, R., Nally, L. M.
2021: 315-319
 - **Simultaneous quantitation of five triazole anti-fungal agents by paper spray-mass spectrometry.** *Clinical chemistry and laboratory medicine*
Skaggs, C. L., Ren, G. J., Elgierari, E. T., Sturmer, L. R., Shi, R. Z., Manicke, N. E., Kirkpatrick, L. M.
2020
 - **The Simultaneous Quantitation of Five Tri-azole Anti-fungal Agents from Plasma Utilizing Paper Spray-Mass Spectrometry ASMS (Reboot) Conference on Mass Spectrometry and Allied Topics**
Skaggs, C., Ren, G., Elgierari, E., Sturmer, L., Shi, R., Manicke, N., Kirkpatrick, L.
ASMS.2020
 - **Large-Scale Testing of Asymptomatic Healthcare Personnel for Severe Acute Respiratory Syndrome Coronavirus 2.** *Emerging infectious diseases*
Hogan, C. A., Gombor, S. n., Wang, H. n., Röltgen, K. n., Shi, R. Z., Holubar, M. n., Chang, S. I., Lee, G. M., Boyd, S. D., Zehnder, J. n., Pinsky, B. A.
2020; 27 (1)
 - **Evaluation of Abbott Anti-SARS-CoV-2 CMIA IgG and Euroimmun ELISA IgG/IgA Assays In a Clinical Lab.** *Clinica chimica acta; international journal of clinical chemistry*
Manalac, J. n., Yee, J. n., Calayag, K. n., Nguyen, L. n., Patel, P. M., Zhou, D. n., Shi, R. Z.
2020
 - **Evaluation of the Aptima HCV Quant Dx Assay using Serum and Dried Blood Spots.** *Journal of clinical microbiology*
Weber, J., Sahoo, M. K., Taylor, N., Shi, R., Pinsky, B. A.
2019

- **Cinacalcet therapy in an infant with an R185Q calcium-sensing receptor mutation causing hyperparathyroidism: a case report and review of the literature.** *Journal of pediatric endocrinology & metabolism : JPEM*
Forman, T. E., Niemi, A., Prahalad, P., Shi, R. Z., Nally, L. M.
2019
- **Automated High Throughput LC-MS/MS Quantitation of Testosterone from Serum: Validation and Interlaboratory Comparison** *MSACL 2019 US Annual Conference and Exhibits*
Chestara, N. R., Mastrianni, K. R., DiVirgilio, E., Brewer, W. E., Kemnitzer, W. E., Shi, R. Z., Miller, K. W.
2019
- **An Automated, Quantitative, and Multiplexed Assay Suitable for Point-of-Care Hepatitis B Virus Diagnostics.** *Scientific reports*
Gani, A. W., Wei, W. n., Shi, R. Z., Ng, E. n., Nguyen, M. n., Chua, M. S., So, S. n., Wang, S. X.
2019; 9 (1): 15615
- **Implementation of User-Defined Lamotrigine and Levetiracetam Immunoassays for Therapeutic Drug Monitoring** *71st AACC Annual Scientific Meeting & Clinical Lab Expo*
Calayag, K., Yee, J., Zhou, D., Shi, R.
AACC.2019
- **Salivary cortisol levels by tandem mass spectrometry during high dose ACTH stimulation test for adrenal insufficiency in children.** *Endocrine*
Chao, C. S., Shi, R. Z., Kumar, R. B., Aye, T. n.
2019
- **Comparison of Transcription-Mediated Amplification and Real-Time PCR Assays for Hepatitis B Virus DNA Quantitation in Serum.** *The journal of applied laboratory medicine*
Weber, J. n., Sahoo, M. K., Taylor, N. n., Uy, E. n., Shi, R. Z., Pinsky, B. A.
2019; 4 (3): 383–90
- **Clinical Utility of an Ultrasensitive Urinary Free Cortisol Assay by Tandem Mass Spectrometry.** *Steroids*
Luo, A. n., El Gierari, E. T., Nally, L. M., Sturmer, L. R., Dodd, D. n., Shi, R. Z.
2019
- **Association of 25-hydroxyvitamin D levels and cutaneous melanoma: A nested case-control study of the Women's Health Initiative Observation Study.** *Journal of the American Academy of Dermatology*
Kwon, G. P., Gamba, C. S., Stefanick, M. L., Swetter, S. M., Li, S., Shi, R. Z., Clarke, C. A., Feldman, D., Millen, A. E., Messina, C., Shikany, J. M., Manson, J. E., Chlebowski, et al
2018; 79 (1): 145–47
- **Interfacing Complex Laboratory Instruments during a Change to Epic Beaker.** *Journal of pathology informatics*
Scott, G. D., Schrandt, C., Ho, C. C., Chung, M. C., Zhou, D., Shi, R. Z.
2018; 9: 24
- **Evaluation of a High Sensitivity Estrone and Estradiol Assay by LC-MS/MS** *70th AACC Annual Scientific Meeting & Clinical Lab Expo*
Sturmer, L. M., El Gierari, E. M., Patel, P. M., Shi, R. Z.
AACC.2018
- **Clinical Utility of an Ultrasensitive Late Night Salivary Cortisol Assay by Tandem Mass Spectrometry.** *Steroids*
Sturmer, L. R., Dodd, D. n., Chao, C. S., Shi, R. Z.
2017
- **Clinical Utility of an Ultrasensitive Late Night Saliva Cortisol Assay by Tandem Mass Spectrometry** *MSACL 2017 US 9th Annual Conference & Exhibits*
Sturmer, L. R., Dodd, D., Shi, R. Z.
2017
- **Implementation of Automated Calculation of Free and Bioavailable Testosterone in Epic Beaker Laboratory Information System.** *Journal of pathology informatics*
Chung, M. C., Gombar, S. n., Shi, R. Z.
2017; 8: 28
- **Rapid Measurement of Cyclosporine and Sirolimus in Whole Blood by Paper Spray-Tandem Mass Spectrometry.** *Clinical chemistry*
Shi, R. Z., El Gierari, E. T., Faix, J. D., Manicke, N. E.

2016; 62 (1): 295-7

- **Comparison between two fully automated immunoassay systems for the determinations of IgA anti-tissue transglutaminase antibody in celiac disease** *68th AACC Annual Scientific Meeting & Clinical Lab Expo*
Iong, E. K., Shi, R. Z., Faix, J. D.
AACC.2016
- **Rapid measurement of tacrolimus in whole blood by paper spray-tandem mass spectrometry (PS-MS/MS).** *Clinica chimica acta; international journal of clinical chemistry*
Shi, R., El Gierari, E. T., Manicke, N. E., Faix, J. D.
2015; 441: 99-104
- **Fast Determination of 17-Hydroxyprogesterone by LC-MS/MS for Diagnosis of Congenital Adrenal Hyperplasia** *MSACL 2015 Salzburg Annual Conference & Exhibits*
Zhou, D., El Gierari, E. M., Shi, R. Z.
2015
- **A Rapid Sample Preparation Method for Quantitative Analysis of Cortisol in Saliva and Urine by LC-MS/MS** *MSACL 2015 US Annual Conference & Exhibits*
Zhou, D., Shi, R. Z.
2015
- **Rapid measurement of tacrolimus, cyclosporin A and sirolimus in blood by paper spray-tandem mass spectrometry (PS-MS/MS)** *66th AACC Annual Meeting & Clinical Lab Expo*
Shi, R. Z., El Gierari, E. M., Manicke, N. E., Faix, J. D.
AACC.2014
- **Assessment of Normal Salivary Cortisol Values in Children Using Mass Spectrometry** *The Endocrine Society's 95th Annual Meeting and Expo*
Kumar, R. B., Shi, R. Z., Schleifer, N. K., Aye, T.
Endocrine Society.2013
- **Rapid Measurement of Tacrolimus in Whole Blood by Paper Spray/Tandem Mass Spectrometry** *65th AACC Annual Meeting & Clinical Lab Expo*
Shi, R. Z., El Gierari, E. M., Manicke, N. E., Faix, J. D.
AACC.2013
- **Serum testosterone quantitation by liquid chromatography-tandem mass spectrometry: Interference from blood collection tubes** *CLINICAL BIOCHEMISTRY*
Shi, R. Z., van Rossum, H. H., Bowen, R. A.
2012; 45 (18): 1706-1709
- **Development and validation of a testosterone assay using liquid chromatography tandem mass spectrometry without derivatization** *Ned Tijdschr Klin Chem Labgeneesk*
van Rossum, H. H., Faix, J. D., Shi, R. Z.
2012; 37 (3): 229-231
- **Validation of confirmatory TPPA syphilis testing in the reverse sequence algorithm** *64th AACC Annual Scientific Meeting & Clinical Lab Expo*
Schroeder, L. F., Shi, R. Z., Elgierari, E. M., Faix, J. D., Banaei, N.
AACC.2012
- **Rapid blood separation is superior to fluoride for preventing in vitro reductions in measured blood glucose concentration** *JOURNAL OF CLINICAL PATHOLOGY*
Shi, R. Z., Seeley, E. S., Bowen, R., Faix, J. D.
2009; 62 (8): 752-753
- **T3 Uptake** *Methods in Clinical Chemistry*
Shi, R. Z.
edited by Hickman, P. E., Koerbin, G.
Pesce Kaplan Publishers.2009; 5th: 1115
- **Thyroid Autoantibodies** *Methods in Clinical Chemistry*
Shi, R. Z.

edited by Hickman, P. E., Koerbin, G.
Pesce Kaplan Publishers.2009; 5th: 1158

- **Thyroglobulin (Tg) Methods in Clinical Chemistry**
Shi, R. Z.
edited by Hickman, P. E., Koerbin, G.
Pesce Kaplan Publishers.2009; 5th: 1151
- **Overview of Pharmacogenomics and Applications for the Modern Clinical Laboratory** *Molecular Diagnostics: Techniques and Applications for the Clinical Laboratory*
Seeley, E., Shi, R. Z., Jannetto, P.
edited by Grody, W. W., Nakamura, R. M., Kiechle, F. L., Strom, C.
Academic Press.2009; 1st: 401
- **A Case of Mixed Club Drugs Abuse** *Tietz's Applied Laboratory Medicine*
Gock, S. B., Shi, R. Z., Jentzen, J. M., Wong, S. H.
edited by Scott, M. G., Gronowski, A. M., Eby, C. S.
Wiley.2007; 2nd: 557–560
- **A 43-Year-Old Male with Chronic Pain** *Tietz's Applied Laboratory Medicine*
Shi, R. Z., Gock, S. B., Jentzen, J. M., Wong, S. H.
edited by Scott, M. G., Gronowski, A. M., Eby, C. S.
Wiley.2007; 2nd: 561–565
- **Gene expression profiles in acute myeloid leukemia with common translocations using SAGE** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Lee, S., Chen, J. J., Zhou, G. L., Shi, R. Z., Bouffard, G. G., Kocherginsky, M., Ge, X. J., Sun, M., Jayathilaka, N., Kim, Y. C., Emmanuel, N., Bohlander, S. K., Minden, et al
2006; 103 (4): 1030-1035
- **The Past, Present, and Future of Pharmacogenomics** *Contemporary Practice In Clinical Chemistry*
Shi, R. Z., Jannetto, P. J.
edited by Clarke, W., Dufour, D.
AACC Press.2006; 2nd: 477
- **Pharmacogenomics as an Aspect of Molecular Autopsy for Forensic Pathology/Toxicology** *Pharmacogenomics and Proteomics: Enabling the Practice of Personalized Medicine*
Wong, S. H., Gock, S. B., Shi, R. Z., Jin, M., Wagner, M. A., Schur, B. C., Jentzen, J. M.
AACC Press.2006
- **Clinical Toxicology-Pharmacogenomics as an Adjunct for Interpretation of Drug Toxicity.** *Pharmacogenomics and Proteomics: Enabling the Practice of Personalized Medicine*
Shi, R. Z., Jannetto, P. J., Lo, S. F., Schur, B. C., Stremski, E., Wong, S. H.
AACC Press.2006; 1
- **Detecting novel low-abundant transcripts in Drosophila** *RNA-A PUBLICATION OF THE RNA SOCIETY*
Lee, S., Bao, J. Y., Zhou, G. L., Shapiro, J., Xu, J. H., Shi, R. Z., Lu, X. M., Clark, T., Johnson, D., Kim, Y. C., Wing, C., Tseng, C., Sun, et al
2005; 11 (6): 939-946
- **Opioids Intoxication, Diversion And Pharmacogenomics for a Case Involving Methadone And Oxycodone** *Ninth International Congress of Therapeutic Drug Monitoring and Clinical Toxicology*
Susan, G. B., Shi, R. Z., Jin, M., Jannetto, P. J., Jentzen, J. M., Wong, S. H.
Therapeutic Drug Monitoring.2005
- **Fentanyl-related Toxicity: A Summary Of 25 Postmortem Cases** *Ninth International Congress of Therapeutic Drug Monitoring and Clinical Toxicology*
Jin, M., Shi, R. Z., Gock, S. B., Jannetto, P. J., Wong, S. H.
Therapeutic Drug Monitoring.2005
- **CYP450 3A4 and 3A5 Genotyping in Methadone Intoxication Cases Using Pyrosequencing** *Ninth International Congress of Therapeutic Drug Monitoring and Clinical Toxicology*
Shi, R. Z., Jannetto, P. J., Jin, M., Schur, B. C., Lo, S. F., Gock, S. B., Jentzen, J. M., Wong, S. H.

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- **Pharmacogenomics As An Adjunct Of Molecular Autopsy - A Multi-center Study For Methadone Death Certification: Preliminary Findings Of Data Acquisition And Multiplex Genotyping cyp2d6, 2C9, 2c19, 3a4 And 3A5 By Pyrosequencing™** *Ninth International Congress of Therapeutic Drug Monitoring and Clinical Toxicology*
Wong, S. H., Jin, M., Shi, R. Z., Gock, S. M., Jentzen, J. M., Jannetto, P. J., Schur, B. C.
Therapeutic Drug Monitoring.2005
- **SAGE is far more sensitive than EST for detecting low-abundance transcripts** *BMC GENOMICS*
Sun, M., Zhou, G. L., Lee, S., Chen, J. J., Shi, R. Z., Wang, S. M.
2004; 5
- **Over 20% of human transcripts might form sense-antisense pairs** *NUCLEIC ACIDS RESEARCH*
Chen, J. J., Sun, M., Kent, W. J., Huang, X. Q., Xie, H. Q., Wang, W. Q., Zhou, G. L., Shi, R. Z., Rowley, J. D.
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- **Multiple Chromosome Translocations in Leukemia: Molecular Diagnosis Detection, Screening and Quantification** *LabMedica International*
Shi, R. Z., Rowley, J. D.
2004; 21 (2): 10-12
- **Screening and quantification of multiple chromosome translocations in human leukemia** *CLINICAL CHEMISTRY*
Shi, R. Z., Morrissey, J. M., Rowley, J. D.
2003; 49 (7): 1066-1073
- **Imaging vascular thrombosis with Tc-99m-labeled fibrin alpha-chain peptide** *JOURNAL OF NUCLEAR MEDICINE*
Thakur, M. L., Pallela, V. R., Consigny, P. M., RAO, P. S., Vessileva-Belnikolovska, D., Shi, R.
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- **Imaging thromboembolism with Tc-99m-labeled thrombospondin receptor analogs TP-1201 and TP-1300.** *Thrombosis Research*
Pallela, V. R., Thakur, M. L., Rao, P. S., Vasileva-Belnikolovska, D., Shi, R. Z.
1999; 93: 191-202
- **Development of an enzyme-linked immunosorbent assay with monoclonal antibody for quantification of homovanillic in human urine samples** *CLINICAL CHEMISTRY*
Shi, R. Z., Ho, Y. P., Yeung, J. H., Or, P. M., To, K. K., Lau, M. W., Arumanayagam, M.
1998; 44 (8): 1674-1679
- **Metabolic effects of thiopurine derivatives against human CCRF-CEM leukaemia cells** *INTERNATIONAL JOURNAL OF BIOCHEMISTRY & CELL BIOLOGY*
Shi, R. Z., Lyons, S. D., Christopherson, R. I.
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