



## Lawrence Leung

Maureen Lyles D'Ambrogio Professor in the School of Medicine  
Medicine - Hematology

### CLINICAL OFFICE (PRIMARY)

- **Hematology Clinic**

875 Blake Wilbur Dr Clinic F

MC 6555

Stanford, CA 94305

**Tel** (650) 498-6000      **Fax** (650) 724-5203

### Bio

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#### CLINICAL FOCUS

- Cancer > Hematology
- Hematology

#### ACADEMIC APPOINTMENTS

- Professor, Medicine - Hematology
- Member, Cardiovascular Institute

#### ADMINISTRATIVE APPOINTMENTS

- Senior Associate Dean for Veterans Affairs, School of Medicine, (2006-2020)
- Chief of Staff, VA Palo Alto Health Care System, (2006-2020)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editor-in-Chief, Hematology, UpToDate (2008 - present)
- Member, Association of American Physicians (2004 - present)
- Member, American Society for Clinical Investigation (1987 - present)

#### PROFESSIONAL EDUCATION

- Board Certification: Hematology, American Board of Internal Medicine (1980)
- Residency: New York Presbyterian Cornell Campus Internal Medicine Residency (1978) NY
- Internship: New York Presbyterian Cornell Campus Internal Medicine Residency (1976) NY
- Fellowship: New York Presbyterian Cornell Campus Hematology Oncology Fellowship (1981) NY
- Medical Education: Columbia University Vagelos College of Physicians and Surgeons Registrar (1975) NY
- Board Certification: Internal Medicine, American Board of Internal Medicine (1978)
- Board Certification: Medical Oncology, American Board of Internal Medicine (1981)

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our long-term interest is to have a better understanding of the natural antithrombotic pathways and the pathophysiology of vascular thrombosis. We have focused on thrombin, the key enzyme in the blood clotting cascade. Using a library of thrombin mutants generated by site-directed mutagenesis, we have mapped the critical functional sites on thrombin for its interactions with its diverse substrates. We are studying a thrombin-activatable carboxypeptidase that plays a key role in the physiologic regulation of thrombin's pro-thrombotic and pro-inflammatory properties. Our goal is to develop new antithrombotic agents and devise new diagnostic tests for vascular thrombotic disorders.

### Publications

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#### PUBLICATIONS

- **Anti-osteopontin antibodies replicate the tumor suppression phenotype in thrombin cleavage-resistant osteopontin knock-in mice.** *Journal of thrombosis and haemostasis : JTH*  
Zhou, Q., Zhao, L., Myles, T., Morser, J., Leung, L. L.  
2025
- **Deficiencies of CPN and CPB2 have opposite effects in a virulent mouse E. coli sepsis model.** *Journal of thrombosis and haemostasis : JTH*  
Zhou, Q., Nishimura, T., Veer, C. v., Leung, L. L., Morser, J.  
2025
- **Active Forms of Chemerin Are Elevated in Human and Mouse Ovarian Carcinoma.** *Biomedicines*  
Zhao, L., Zhou, Q., Krishnan, V., Chan, J., Sasse, S., Tallapragada, S., Eisenberg, D., Leung, L., Dorigo, O., Morser, J.  
2025; 13 (4)
- **Methods to Investigate Thrombin Cleavage of Osteopontin (OPN).** *Methods in molecular biology (Clifton, N.J.)*  
Zhao, L., Leung, L. L., Morser, J.  
2024; 2747: 95-117
- **Chemerin Levels in Individuals with Type 2 Diabetes and a Normal Weight versus Individuals with Type 2 Diabetes and Obesity: An Observational, Cross-Sectional Study.** *Biomedicines*  
Mukherji, A. B., Idowu, V., Zhao, L., Leung, L. L., Shen, S., Palaniappan, L., Morser, J.  
2024; 12 (5)
- **Chemerin in Participants with or without Insulin Resistance and Diabetes.** *Biomedicines*  
Zhao, L., Zhou, J., Abbasi, F., Fathzadeh, M., Knowles, J. W., Leung, L. L., Morser, J.  
2024; 12 (4)
- **Thrombin Cleavage of Osteopontin and the Host Anti-Tumor Immune Response.** *Cancers*  
Leung, L. L., Myles, T., Morser, J.  
2023; 15 (13)
- **Chemerin Forms: Their Generation and Activity.** *Biomedicines*  
Zhao, L., Leung, L. L., Morser, J.  
2022; 10 (8)
- **Simultaneous Cases of Carfilzomib-Induced Thrombotic Microangiopathy in 2 Patients With Multiple Myeloma.** *Federal practitioner : for the health care professionals of the VA, DoD, and PHS*  
Myall, N. J., Wang, S. X., Hall, E. T., Witteles, W. H., Leung, L., Dunn, T. J., Hong, W. J.  
2022; 39 (Suppl 3): S56-S62
- **Thrombin cleavage of osteopontin initiates osteopontin's tumor-promoting activity.** *Journal of thrombosis and haemostasis : JTH*  
Peraramelli, S., Zhou, Q., Zhou, Q., Wanko, B., Zhao, L., Nishimura, T., Leung, T. H., Mizuno, S., Ito, M., Myles, T., Stulnig, T. M., Morser, J., Leung, et al  
1800

- **Both plasma basic carboxypeptidases, carboxypeptidase B2 and carboxypeptidase N, regulate vascular leakage activity in mice.** *Journal of thrombosis and haemostasis : JTH*  
Zhou, Q., Zhao, L., Shao, Z., Declerck, P., Leung, L. L., Morser, J.  
2021
- **Chemerin regulates formation and function of brown adipose tissue: Ablation results in increased insulin resistance with high fat challenge and aging.** *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*  
Zhang, Y., Shen, W., Qiu, S., Yang, P., Dempsey, G., Zhao, L., Zhou, Q., Hao, X., Dong, D., Stahl, A., Kraemer, F. B., Leung, L. L., Morser, et al  
2021; 35 (7): e21687
- **Antibody-mediated targeting of cleavage-specific OPN-T cell interactions** *PLOS ONE*  
Wanko, B., Tardelli, M., Juerets, A., Neuhofer, A., Prager, G., Morser, J., Leung, L. L., Staffler, G., Zeyda, M., Stulnig, T. M.  
2019; 14 (4)
- **Antibody-mediated targeting of cleavage-specific OPN-T cell interactions.** *PloS one*  
Wanko, B., Tardelli, M., Jurets, A., Neuhofer, A., Prager, G., Morser, J., Leung, L. L., Staffler, G., Zeyda, M., Stulnig, T. M.  
2019; 14 (4): e0214938
- **Decoding the Genomics of Abdominal Aortic Aneurysm.** *Cell*  
Li, J., Pan, C., Zhang, S., Spin, J. M., Deng, A., Leung, L. L., Dalman, R. L., Tsao, P. S., Snyder, M.  
2018; 174 (6): 1361
- **Decoding the Genomics of Abdominal Aortic Aneurysm** *CELL*  
Li, J., Pan, C., Zhang, S., Spin, J. M., Deng, A., Leung, L. L. K., Dalman, R. L., Tsao, P. S., Snyder, M.  
2018; 174 (6): 1361-+
- **Dynamic and tissue-specific proteolytic processing of chemerin in obese mice** *PLOS ONE*  
Zhao, L., Yamaguchi, Y., Shen, W., Morser, J., Leung, L. L. K.  
2018; 13 (8)
- **Chemerin 156F, generated by chymase cleavage of prochemerin, is elevated in joint fluids of arthritis patients.** *Arthritis research & therapy*  
Zhao, L., Yamaguchi, Y., Ge, X., Robinson, W. H., Morser, J., Leung, L. L.  
2018; 20 (1): 132
- **Chemerin 156F, generated by chymase cleavage of prochemerin, is elevated in joint fluids of arthritis patients** *ARTHRITIS RESEARCH & THERAPY*  
Zhao, L., Yamaguchi, Y., Ge, X., Robinson, W. H., Morser, J., Leung, L. L. K.  
2018; 20
- **Men and Women Differ in the Biochemical Composition of Platelet-Rich Plasma** *AMERICAN JOURNAL OF SPORTS MEDICINE*  
Xiong, G., Lingampalli, N., Koltsov, J. C. B., Leung, L. L., Bhutani, N., Robinson, W. H., Chu, C. R.  
2018; 46 (2): 409–19
- **Prochemerin cleavage by factor XIa links coagulation and inflammation** *BLOOD*  
Ge, X., Yamaguchi, Y., Zhao, L., Bury, L., Gresele, P., Berube, C., Leung, L. L., Morser, J.  
2018; 131 (3): 353–64
- **Dynamic and tissue-specific proteolytic processing of chemerin in obese mice.** *PloS one*  
Zhao, L., Yamaguchi, Y., Shen, W., Morser, J., Leung, L. L.  
2018; 13 (8): e0202780
- **Deficiency of Either Carboxypeptidase B2 or Carboxypeptidase N Exacerbated Disease Activity in a Mouse Model of Hemolytic Uremic Syndrome**  
Leung, L. L., Shao, Z., Nishimura, T., Zhou, Q., Gigliello, L., Castro, P., Higgins, J., Morser, J.  
AMER SOC HEMATOLOGY.2016
- **Chemerin Activation in Human Obesity** *OBESITY*  
Chang, S., Eisenberg, D., Zhao, L., Adams, C., Leib, R., Morser, J., Leung, L.  
2016; 24 (7): 1522-1529

- **Plasmin as a complement C5 convertase.** *EBioMedicine*  
Leung, L. L., Morser, J.  
2016; 5: 20-21
- **Thrombin Cleavage of Osteopontin Disrupts a Pro-chemotactic Sequence for Dendritic Cells, Which Is Compensated by the Release of Its Pro-chemotactic C-terminal Fragment** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Shao, Z., Morser, J., Leung, L. L.  
2014; 289 (39): 27146-27158
- **Thrombin cleavage of osteopontin disrupts a pro-chemotactic sequence for dendritic cells, which is compensated by the release of its pro-chemotactic C-terminal fragment.** *journal of biological chemistry*  
Shao, Z., Morser, J., Leung, L. L.  
2014; 289 (39): 27146-27158
- **Open aortic valve replacement in a patient with Glanzmann's thrombasthenia: a multidisciplinary strategy to minimize perioperative bleeding.** *Transfusion*  
Sheikh, A. Y., Hill, C. C., Goodnough, L. T., Leung, L. L., Fischbein, M. P.  
2014; 54 (2): 300-305
- **Brief report: carboxypeptidase B serves as a protective mediator in osteoarthritis.** *Arthritis & rheumatology (Hoboken, N.J.)*  
Lepus, C. M., Song, J. J., Wang, Q., Wagner, C. A., Lindstrom, T. M., Chu, C. R., Sokolove, J., Leung, L. L., Robinson, W. H.  
2014; 66 (1): 101-106
- **Carboxypeptidase B Serves as a Protective Mediator in Osteoarthritis** *ARTHRITIS & RHEUMATOLOGY*  
Lepus, C. M., Song, J. J., Wang, Q., Wagner, C. A., Lindstrom, T. M., Chu, C. R., Sokolove, J., Leung, L. L., Robinson, W. H.  
2014; 66 (1): 101-106
- **Carboxypeptidase B2 Down-Regulates Osteoclast Activation In Inflammation.**  
Song, J., Lee, S., Park, Y., Lee, S., Leung, L., Robinson, W. H.  
WILEY-BLACKWELL.2013: S781
- **Targeting complement component 5a promotes vascular integrity and limits airway remodeling.** *Proceedings of the National Academy of Sciences of the United States of America*  
Khan, M. A., Maasch, C., Vater, A., Klussmann, S., Morser, J., Leung, L. L., Atkinson, C., Tomlinson, S., Heeger, P. S., Nicolls, M. R.  
2013; 110 (15): 6061-6066
- **Thrombin-cleaved Fragments of Osteopontin Are Overexpressed in Malignant Glial Tumors and Provide a Molecular Niche with Survival Advantage** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Yamaguchi, Y., Shao, Z., Sharif, S., Du, X., Myles, T., Merchant, M., Harsh, G., Glantz, M., Recht, L., Morser, J., Leung, L. L.  
2013; 288 (5): 3097-3111
- **Microfluidic impedance cytometer for platelet analysis** *LAB ON A CHIP*  
Evander, M., Ricco, A. J., Morser, J., Kovacs, G. T., Leung, L. L., Giovangrandi, L.  
2013; 13 (4): 722-729
- **Differential Gene Expression in Thrombomodulin (TM; CD141)(+) and TM(-) Dendritic Cell Subsets.** *PLoS one*  
Toda, M., Shao, Z., Yamaguchi, K. D., Takagi, T., D'Alessandro-Gabazza, C. N., Taguchi, O., Salamon, H., Leung, L. L., Gabazza, E. C., Morser, J.  
2013; 8 (8)
- **Chemerin Bioactivity Is Regulated by Factor XIa: A Novel Interface Linking Between Coagulation, Hemostasis and Immunity** *53rd Annual Meeting and Exposition of the American-Society-of-Hematology (ASH)*  
Yamaguchi, Y., Morser, J., Leung, L. L.  
AMER SOC HEMATOLOGY.2011: 981-82
- **Chemerin158K Protein Is the Dominant Chemerin Isoform in Synovial and Cerebrospinal Fluids but Not in Plasma** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Zhao, L., Yamaguchi, Y., Sharif, S., Du, X., Song, J. J., Lee, D. M., Recht, L. D., Robinson, W. H., Morser, J., Leung, L. L.  
2011; 286 (45): 39520-39527
- **Proteolytic Cleavage of Chemerin Protein Is Necessary for Activation to the Active Form, Chem157S, Which Functions as a Signaling Molecule in Glioblastoma** *JOURNAL OF BIOLOGICAL CHEMISTRY*

- Yamaguchi, Y., Du, X., Zhao, L., Morser, J., Leung, L. L.  
2011; 286 (45): 39510-39519
- **Plasma carboxypeptidase B downregulates inflammatory responses in autoimmune arthritis** *JOURNAL OF CLINICAL INVESTIGATION*  
Song, J. J., Hwang, I., Cho, K. H., Garcia, M. A., Kim, A. J., Wang, T. H., Lindstrom, T. M., Lee, A. T., Nishimura, T., Zhao, L., Morser, J., Nesheim, M., Goodman, et al  
2011; 121 (9): 3517-3527
  - **Enhanced Abdominal Aortic Aneurysm Formation in Thrombin-Activatable Procarboxypeptidase B-Deficient Mice** *ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY*  
Schultz, G., Tedesco, M. M., Sho, E., Nishimura, T., Sharif, S., Du, X., Myles, T., Morser, J., Dalman, R. L., Leung, L. L.  
2010; 30 (7): 1363-1370
  - **What has been learnt from the thrombin-activatable fibrinolysis inhibitor-deficient mouse?** *JOURNAL OF THROMBOSIS AND HAEMOSTASIS*  
Morser, J., Gabazza, E. C., Myles, T., Leung, L. L.  
2010; 8 (5): 868-876
  - **Thrombospondin Type I Domain Containing 7A (THSD7A) Mediates Endothelial Cell Migration and Tube Formation** *JOURNAL OF CELLULAR PHYSIOLOGY*  
Wang, C., Su, P., Du, X., Kuo, M., Lin, C., Yang, C., Chan, H., Chang, S., Kuo, C., Seo, K., Leung, L. L., Chuan, Y.  
2010; 222 (3): 685-694
  - **Heparin-induced thrombosis without thrombocytopenia** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*  
Tibayan, F. A., Leung, L. L., Burdon, T. A., Fann, J. I.  
2010; 139 (2): E6-E7
  - **Prochemerin Is a New Substrate for Thrombin** *51st Annual Meeting and Exposition of the American-Society-of-Hematology*  
Du, X., Myles, T., Morser, J., Leung, L. L.  
AMER SOC HEMATOLOGY.2009: 1391-91
  - **Thrombin-Activatable Carboxypeptidase B Cleavage of Osteopontin Regulates Neutrophil Survival and Synovocyte Binding in Rheumatoid Arthritis** *ARTHRITIS AND RHEUMATISM*  
Sharif, S. A., Du, X., Myles, T., Song, J. J., Price, E., Lee, D. M., Goodman, S. B., Nagashima, M., Morser, J., Robinson, W. H., Leung, L. L.  
2009; 60 (10): 2902-2912
  - **Regulation of Chemerin Bioactivity by Plasma Carboxypeptidase N, Carboxypeptidase B (Activated Thrombin-activable Fibrinolysis Inhibitor), and Platelets** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Du, X., Zabel, B. A., Myles, T., Allen, S. J., Handel, T. M., Lee, P. P., Butcher, E. C., Leung, L. L.  
2009; 284 (2): 751-758
  - **Differentially Cleaved Forms of Osteopontin by Thrombin and Carboxypeptidase B (TAF1a) Regulates Neutrophil Viability and Synovocyte Binding in Rheumatoid Arthritis** *50th Annual Meeting of the American-Society-of-Hematology/ASH/ASCO Joint Symposium*  
Sharif, S., Du, X., Myles, T., Song, J. J., Price, E. A., Lee, D., Goodman, S., Morser, J., Robinson, W., Leung, L. L.  
AMER SOC HEMATOLOGY.2008: 1219-19
  - **Platelet Interaction with Bone Marrow Derived CD34(+) Stem Cells: Potential Role of Chemoattractant Chemerin** *50th Annual Meeting of the American-Society-of-Hematology/ASH/ASCO Joint Symposium*  
Du, X., Leung, L. L.  
AMER SOC HEMATOLOGY.2008: 1339-39
  - **Enhanced Abdominal Aortic Aneurysm (AAA) Formation in Procarboxypeptidase B (pCPB)-Deficient Mice** *81st Annual Scientific Session of the American-Heart-Association*  
Tedesco, M. M., Sho, E., Nishimura, T., Sharif, S., Du, X., Dalman, R. L., Leung, L. L.  
LIPPINCOTT WILLIAMS & WILKINS.2008: S310-S310
  - **Regulation of tissue inflammation by thrombin-activatable carboxypeptidase B (or TAFI)** *22nd International Complement Workshop*  
Leung, L. L., Myles, T., Nishimura, T., Song, J. J., Robinson, W. H.  
PERGAMON-ELSEVIER SCIENCE LTD.2008: 4080-83
  - **A central anti-inflammatory role of carboxypeptidase B in autoimmune arthritis** *72nd Annual Scientific Meeting of the American-College-of-Rheumatology/43rd Annual Scientific Meeting of the Association-of-Rheumatology-Health-Professionals*

- Song, J. J., Nishimura, T., Garcia, M., Myles, T., Du, X., Sharif, S., Leung, L., Robinson, W.  
WILEY-BLACKWELL.2008: S264–S265
- **Thrombin hydrolysis of human osteopontin is dependent on thrombin anion-binding exosites** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Myles, T., Leung, L. L.  
2008; 283 (26): 17789-17796
  - **Regulation of chemerin bioactivity by plasma carboxypeptidase N, carboxypeptidase B (TAFIa) and platelets** *49th Annual Meeting of the American-Society-of-Hematology*  
Du, X., Zabel, B., Allen, S. J., Handel, T. M., Lee, P. P., Butcher, E. C., Leung, L. L.  
AMER SOC HEMATOLOGY.2007: 126A–127A
  - **Thrombin-cleaved osteopontin is regulated by thrombin-activatable carboxypeptidase B in rheumatoid arthritis.** *49th Annual Meeting of the American-Society-of-Hematology*  
Myles, T., Sharif, S. A., Du, X., Song, J. J., Elizabeth, P., Robinson, W. H., Leung, L. L.  
AMER SOC HEMATOLOGY.2007: 519A–519A
  - **Essential thrombin residues for inhibition by protein C inhibitor with the cofactors heparin and thrombomodulin** *JOURNAL OF THROMBOSIS AND HAEMOSTASIS*  
Fortenberry, Y. M., Whinna, H. C., Cooper, S. T., Myles, T., Leung, L. L., Church, F. C.  
2007; 5 (7): 1486-1492
  - **Thrombin-activatable procarboxypeptidase B regulates activated complement C5a in vivo** *BLOOD*  
Nishimura, T., Myles, T., Piliiposky, A. M., Kao, P. N., Berry, G. J., Leung, L. L.  
2007; 109 (5): 1992-1997
  - **Thrombin-activatable carboxypeptidase B prevents anti-collagen antibody induced arthritis** *7th Annual Meeting of the Federation-of-Clinical-Immunology-Societies*  
Song, J., Nishimura, T., Garcia, M., Myles, T., Ho, P., Du, X., Sharif, S., Leung, L., Robinson, W.  
ACADEMIC PRESS INC ELSEVIER SCIENCE.2007: S98–S98
  - **Enhanced abdominal aortic aneurysm formation in procarboxypeptidase B-deficient mice** *79th Annual Scientific Session of the American-Heart-Association*  
Tedesco, M. M., Sho, E., Nishimura, T., Sho, M., Dalman, R. L., Leung, L. L.  
LIPPINCOTT WILLIAMS & WILKINS.2006: 39–40
  - **Antiangiogenic antithrombin induces global changes in the gene expression profile of endothelial cells** *CANCER RESEARCH*  
Zhang, W., Chuang, Y., Jin, T., Swanson, R., Xiong, Y., Leung, L., Olson, S. T.  
2006; 66 (10): 5047-5055
  - **Perioperative evaluation of bleeding diathesis.** *Hematology / the Education Program of the American Society of Hematology. American Society of Hematology. Education Program*  
Leung, L. L.  
2006: 457-461
  - **Exosite-interactive regions in the A1 and A2 domains of factor VIII facilitate thrombin-catalyzed cleavage of heavy chain** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Nogami, K., Zhou, Q., Myles, T., Leung, L. L., Wakabayashi, H., Fay, P. J.  
2005; 280 (18): 18476-18487
  - **Thrombin-activatable fibrinolysis inhibitor (TAFI) regulates activated complement C5a in vivo.** *46th Annual Meeting of the American-Society-of-Hematology*  
Nishimura, T., Myles, T., Nagashima, M., MORSER, J., Pearl, R. G., Leung, L. L.  
AMER SOC HEMATOLOGY.2004: 812A–812A
  - **Mechanism of interaction between the heavy chain of factor VIII and thrombin** *46th Annual Meeting of the American-Society-of-Hematology*  
Nogami, K., Zhou, Q., Wakabayashi, H., Myles, T., Leung, L. L., Fay, P. J.  
AMER SOC HEMATOLOGY.2004: 475A–475A
  - **Crystal structure of anticoagulant thrombin variant E217K provides insights into thrombin allostery** *JOURNAL OF BIOLOGICAL CHEMISTRY*

- Carter, W. J., Myles, T., Gibbs, C. S., Leung, L. L., Huntington, J. A.  
2004; 279 (25): 26387-26394
- **Antiangiogenic antithrombin down-regulates the expression of the proangiogenic heparan sulfate proteoglycan, perlecan, in endothelial cells** *BLOOD*  
Zhang, W. Q., Chuang, Y. J., Swanson, R., Li, J., Seo, K. G., Leung, L., Lau, L. F., Olson, S. T.  
2004; 103 (4): 1185-1191
  - **Molecular cloning of nonsecreted endothelial cell-derived lipase isoforms** *GENOMICS*  
Ishida, T., Zheng, Z., Dichek, H. L., Wang, H. J., Moreno, I., Yang, E., Kundu, R. K., Talbi, S., Hirata, K. I., Leung, L. L., Quertermous, T.  
2004; 83 (1): 24-33
  - **Thrombin activatable fibrinolysis inhibitor, a potential regulator of vascular inflammation** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Myles, T., Nishimura, T., Yun, T. H., Nagashima, M., MORSER, J., Patterson, A. J., Pearl, R. G., Leung, L. L.  
2003; 278 (51): 51059-51067
  - **Thrombin activation of factor XI on activated platelets requires the interaction of factor XI and platelet glycoprotein Ib alpha with thrombin anion-binding exosites I and II, respectively (Retracted Article. See vol 282, pg 29067, 2007)** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Yun, T. H., Baglia, F. A., Myles, T., Navaneetham, D., Lopez, J. A., Walsh, P. N., Leung, L. L.  
2003; 278 (48): 48112-48119
  - **Thrombin activation of factor XI on activated platelets requires the interaction of factor XI and platelet glycoprotein Ib alpha with thrombin anion-binding exosites I and II, respectively.** *The Journal of biological chemistry*  
Yun, T. H., Baglia, F. A., Myles, T., Navaneetham, D., López, J. A., Walsh, P. N., Leung, L. L.  
2003; 278 (48): 48112-9
  - **Quantitative transcript profiling and the identification of a novel vascular endothelial cell marker, placental endothelial protein-1, by serial analysis of gene expression.** *45th Annual Meeting and Exhibition of the American-Society-of-Hematology*  
Chuang, Y. J., Seo, K., Gray, J., Druzin, M., Kuo, C., Leung, L.  
AMER SOC HEMATOLOGY.2003: 10A-11A
  - **Roles of low specificity and cofactor interaction sites on thrombin during factor XIII activation - Competition for cofactor sites on thrombin determines its fate** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Philippou, H., Rance, J., Myles, T., Hall, S. W., Ariens, R. A., Grant, P. J., Leung, L., Lane, D. A.  
2003; 278 (34): 32020-32026
  - **Structural requirements for the activation of human factor VIII by thrombin** *BLOOD*  
Myles, T., Yun, T. H., Leung, L. L.  
2002; 100 (8): 2820-2826
  - **Thrombin inhibition by a reactive center L444R mutant of heparin cofactor II**  
Fortenberry, Y. M., Mitchell, J. W., Myles, T., Leung, L. L., Church, F. C.  
FEDERATION AMER SOC EXP BIOL.2002: A1193-A1193
  - **Identification of critical residues on thrombin mediating its interaction with fibrin** *THROMBOSIS AND HAEMOSTASIS*  
HALL, S. W., Gibbs, C. S., Leung, L. L.  
2001; 86 (6): 1466-1474
  - **Immunological consequences of topical bovine thrombin** *AMERICAN JOURNAL OF PATHOLOGY*  
Zehnder, J. L., Leung, L. L.  
2001; 159 (6): 2371-2371
  - **Dextran sulfate-mediated thrombin activation of factor XI requires anion binding exosite II.**  
Yun, T. H., Myles, T., Leung, L. L.  
AMER SOC HEMATOLOGY.2001: 529A-529A
  - **Molecular mapping of the thrombin-heparin cofactor II complex.**  
Fortenberry, Y. M., Gentry, H. R., Myles, T., Leung, L. L., Church, F. C.  
AMER SOC HEMATOLOGY.2001: 825A-825A

- **An extensive interaction interface between thrombin and factor V is required for factor V activation** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Myles, T., Yun, T. H., HALL, S. W., Leung, L. L.  
2001; 276 (27): 25143-25149
- **A thrombin receptor function for platelet glycoprotein Ib-IX unmasked by cleavage of glycoprotein V** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Ramakrishnan, V., Deguzman, F., Bao, M., HALL, S. W., Leung, L. L., Phillips, D. R.  
2001; 98 (4): 1823-1828
- **An extensive interaction interface between thrombin and factor V is revealed by alanine scanning mutagenesis of thrombin.**  
Myles, T., Yun, T. H., HALL, S. W., Leung, L. L.  
AMER SOC HEMATOLOGY.2000: 632A-?
- **GP Ib is a functional thrombin receptor on platelets.**  
Ramakrishnan, V., Deguzman, F., Bao, M., HALL, S. W., Leung, L. L., Phillips, D. R.  
AMER SOC HEMATOLOGY.2000: 446A-447A
- **Anti-apoptosis is a prominent response of endothelial cells to inflammatory cytokine stimulation.**  
Zheng, Z., Ross, D. T., Brown, P. O., Leung, L. L.  
AMER SOC HEMATOLOGY.1999: 226A-226A
- **Identification of critical residues in thrombin mediating platelet activation.**  
HALL, S. W., Venkataraman, G., Thompson, D., Leung, L. L.  
AMER SOC HEMATOLOGY.1999: 648A-648A
- **Thrombin interacts with thrombomodulin, protein C, and thrombin-activatable fibrinolysis inhibitor via specific and distinct domains** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Hall, S. W., Nagashima, M., Zhao, L., MORSER, J., Leung, L. L.  
1999; 274 (36): 25510-25516
- **Dissociation of thrombin's protein C and TAFI activities by site-directed mutagenesis.**  
HALL, S. W., Nagashima, M., Zhao, L., MORSER, J., Leung, L. L.  
AMER SOC HEMATOLOGY.1998: 184A-184A
- **Strategies for development of novel antithrombotics: modulating thrombin's procoagulant and anticoagulant properties** *CELLULAR AND MOLECULAR LIFE SCIENCES*  
HALL, S. W., Gibbs, C. S., Leung, L. L.  
1997; 53 (9): 731-736
- **Modulation of thrombin's procoagulant and anticoagulant properties** *THROMBOSIS AND HAEMOSTASIS*  
Leung, L. L., Gibbs, C. S.  
1997; 78 (1): 577-580
- **Identification of a domain (155-183) on CD36 implicated in the phagocytosis of apoptotic neutrophils** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Navazo, M. D., Daviet, L., Savill, J., Ren, Y., Leung, L. L., McGregor, J. L.  
1996; 271 (26): 15381-15385
- **SELECTION OF A SUPPRESSOR MUTATION THAT RESTORES AFFINITY OF AN OLIGONUCLEOTIDE INHIBITOR FOR THROMBIN USING IN-VITRO GENETICS** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Tsiang, M., Gibbs, C. S., Griffin, L. C., Dunn, K. E., Leung, L. L.  
1995; 270 (33): 19370-19376
- **FUNCTIONAL MAPPING OF THE SURFACE RESIDUES OF HUMAN THROMBIN** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Tsiang, M., Jain, A. K., Dunn, K. E., Rojas, M. E., Leung, L. L., Gibbs, C. S.  
1995; 270 (28): 16854-16863
- **Conversion of thrombin into an anticoagulant by protein engineering** *Nature*  
Leung LLK, Gibbs CS, Coutre SE, Tsiang M, Li WX, Jain AK, Dunn KE, Law VS, Mao CT, Matsumura SY, Mejsa SJ, Paborsky LR

1995

- **PILOT-STUDY OF THE EFFICACY OF A THROMBIN INHIBITOR FOR USE DURING CARDIOPULMONARY BYPASS** *30th Annual Meeting of the Society-of-Thoracic-Surgeons*

DeAnda, A., Coutre, S. E., Moon, M. R., Vial, C. M., Griffin, L. C., Law, V. S., Komeda, M., Leung, L. L., Miller, D. C.  
ELSEVIER SCIENCE INC.1994: 344–50