

Stanford



Scott D. Boyd, MD PhD

Associate Professor of Pathology

CLINICAL OFFICES

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Bio

BIO

Dr. Boyd is a physician scientist, Associate Professor of Pathology and Endowed Faculty Scholar in Allergy and Immunology at Stanford University. The Boyd laboratory uses high-throughput DNA sequencing and single-cell experiments to analyze human immune responses to infection and vaccination, as well as immunological disorders such as food allergy and immunodeficiency. Many of the laboratory's projects analyze the responses of B cells and the genetics and functional roles of antibodies in health and disease.

He received bachelor's degrees in Biochemistry at the University of Manitoba, and English Literature at Oxford University, where he was a Rhodes Scholar. He obtained his M.D. from Harvard Medical School and Ph.D. from MIT, followed by pathology residency, hematopathology fellowship, and postdoctoral research work at Stanford University. He is a recipient of the Presidential Early Career Award for Scientists and Engineers, among other honors.

Dr. Boyd has consulted as an expert witness in patent disputes related to antibody technologies and antibody drugs.

CLINICAL FOCUS

- Hematopathology
- Clinical Chemistry

ACADEMIC APPOINTMENTS

- Associate Professor, Pathology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

- Member, Stanford Cancer Institute

HONORS AND AWARDS

- Presidential Early Career Award for Scientists and Engineers, White House Office of Science and Technology Policy/NIH (2019)
- Postdoctoral Fellow Mentor Award, Department of Immunology, Stanford University (2017)
- Rhodes Scholarship, University of Oxford (1992-4)
- University Gold Medal, highest standing in honors science, University of Manitoba (1992)
- Governor General Medal, highest undergraduate standing, University of Manitoba (1992)
- Thomas Jefferson Award, St. Catherine's College, Oxford (1994)
- Frank Knox Fellowship, Harvard University (1994)
- Pre-doctoral fellowship, Howard Hughes Medical Institutes (1997)
- Neurofibromatosis (NF) Foundation, 1st Prize, Neurofibromatosis Foundation (2002)
- Young Investigator Award, Society of Pediatric Pathology (2007)
- Harry B. Neustein Award, Society of Pediatric Pathology (2008)
- Walter V. and Idun Berry Fellowship, Stanford University (2008)
- New Scholar Award in Aging, Ellison Medical Foundation (2011)
- Young Faculty Award, Center for HIV/AIDS Vaccine Immunology, Duke University (2013)

PROFESSIONAL EDUCATION

- Residency: Stanford University Department of Pathology (2009) CA
- Fellowship: Stanford University Department of Pathology (2008) CA
- Fellowship, Stanford University , Hematopathology (2009)
- Residency, Stanford University , Clinical Pathology (2009)
- Medical Education: Harvard Medical School (2005) MA
- Ph.D., M.I.T. , Biology (2004)
- B.A., University of Oxford , English Literature (1994)
- B.Sc.(Hons), University of Manitoba , Biochemistry (1992)
- Board Certification: Clinical Pathology, American Board of Pathology (2009)
- Board Certification: Hematopathology, American Board of Pathology (2009)

LINKS

- Boyd lab website: <http://med.stanford.edu/scottboydlab.html>
- Boyd Lab Twitter: <https://twitter.com/ScottBoydLab>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our goal is to understand the lymphocyte genotype-phenotype relationships in healthy human immunity and in immunological diseases. We apply new technologies and data analysis approaches to this challenge, particularly high-throughput DNA sequencing and single-cell monoclonal antibody generation, in parallel with functional assays. Our main focus has been defining clonal lineages of B cells and their antigen specificity in clinical samples from healthy individuals undergoing vaccination or responding to infection, as well as in patients with immune-mediated diseases such as food allergy. Other areas of active research are the B cell responses to HIV, immune deficiencies related to human aging, and transplant immunology.

CLINICAL TRIALS

- Integrated Whole-Genome Analysis of Hematologic Disorders, Not Recruiting

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Maria Filsinger Interrante

Postdoctoral Faculty Sponsor

Oliver Wirz

Doctoral Dissertation Advisor (AC)

Grace Jean, Taylor Pursell

Doctoral Dissertation Co-Advisor (AC)

Maxim Zaslavsky

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Immunology (Phd Program)

Publications

PUBLICATIONS

- **Influenza virus infection history shapes antibody responses to influenza vaccination.** *Nature medicine*
Auladell, M., Phuong, H. V., Mai, L. T., Tseng, Y., Carolan, L., Wilks, S., Thai, P. Q., Price, D., Duong, N. T., Hang, N. L., Thanh, L. T., Thuong, N. T., Huong, et al
2022
- **Multiple early factors anticipate post-acute COVID-19 sequelae.** *Cell*
Su, Y., Yuan, D., Chen, D. G., Ng, R. H., Wang, K., Choi, J., Li, S., Hong, S., Zhang, R., Xie, J., Kornilov, S. A., Scherler, K., Pavlovitch-Bedzyk, et al
2022
- **Early non-neutralizing, afucosylated antibody responses are associated with COVID-19 severity.** *Science translational medicine*
Chakraborty, S., Gonzalez, J. C., Sievers, B. L., Mallajosyula, V., Chakraborty, S., Dubey, M., Ashraf, U., Cheng, B. Y., Kathale, N., Tran, K. Q., Scallan, C., Sinnott, A., Cassidy, et al
1800: eabm7853
- **Durability of immune responses to the BNT162b2 mRNA vaccine** *MED*
Suthar, M. S., Arunachalam, P. S., Hu, M., Reis, N., Trisal, M., Raeber, O., Chinthrajah, S., Davis-Gardner, M. E., Manning, K., Mudvari, P., Boritz, E., Godbole, S., Henry, et al
2022; 3 (1): 25-27
- **Antibodies elicited by SARS-CoV-2 infection or mRNA vaccines have reduced neutralizing activity against Beta and Omicron pseudoviruses.** *Science translational medicine*
Sievers, B. L., Chakraborty, S., Xue, Y., Gelbart, T., Gonzalez, J. C., Cassidy, A. G., Golan, Y., Prah, M., Gaw, S. L., Arunachalam, P. S., Blish, C. A., Boyd, S. D., Davis, et al
1800: eabn7842
- **Immune imprinting, breadth of variant recognition, and germinal center response in human SARS-CoV-2 infection and vaccination.** *Cell*
Röltgen, K., Nielsen, S. C., Silva, O., Younes, S. F., Zaslavsky, M., Costales, C., Yang, F., Wirz, O. F., Solis, D., Hoh, R. A., Wang, A., Arunachalam, P. S., Colburg, et al
2022
- **Direct comparison of antibody responses to four SARS-CoV-2 vaccines in Mongolia.** *Cell host & microbe*

- Dashdorj, N. J., Wirz, O. F., Roltgen, K., Haraguchi, E., Buzzanco, A. S., Sibai, M., Wang, H., Miller, J. A., Solis, D., Sahoo, M. K., Arunachalam, P. S., Lee, A. S., Shah, et al
2021
- **Antibody and B cell responses to SARS-CoV-2 infection and vaccination.** *Cell host & microbe*
Roltgen, K., Boyd, S. D.
2021
 - **Shared B cell memory to coronaviruses and other pathogens varies in human age groups and tissues.** *Science (New York, N.Y.)*
Yang, F., Nielsen, S. C., Hoh, R. A., Roltgen, K., Wirz, O. F., Haraguchi, E., Jean, G. H., Lee, J., Pham, T. D., Jackson, K. J., Roskin, K. M., Liu, Y., Nguyen, et al
2021
 - **Local immune response to food antigens drives meal-induced abdominal pain.** *Nature*
Aguilera-Lizarraga, J., Florens, M. V., Viola, M. F., Jain, P., Decraecker, L., Appeltans, I., Cuende-Estevez, M., Fabre, N., Van Beek, K., Perna, E., Balemans, D., Stakenborg, N., Theofanous, et al
2021
 - **Modeling human adaptive immune responses with tonsil organoids.** *Nature medicine*
Wagar, L. E., Salahudeen, A. n., Constantz, C. M., Wendel, B. S., Lyons, M. M., Mallajosyula, V. n., Jatt, L. P., Adamska, J. Z., Blum, L. K., Gupta, N. n., Jackson, K. J., Yang, F. n., Röltgen, et al
2021
 - **Systems vaccinology of the BNT162b2 mRNA vaccine in humans.** *Nature*
Arunachalam, P. S., Scott, M. K., Hagan, T., Li, C., Feng, Y., Wimmers, F., Grigoryan, L., Trisal, M., Edara, V. V., Lai, L., Chang, S. E., Feng, A., Dhingra, et al
2021
 - **Aberrant B cell repertoire selection associated with HIV neutralizing antibody breadth.** *Nature immunology*
Roskin, K. M., Jackson, K. J., Lee, J., Hoh, R. A., Joshi, S. A., Hwang, K., Bonsignori, M., Pedroza-Pacheco, I., Liao, H., Moody, M. A., Fire, A. Z., Borrow, P., Haynes, et al
2020
 - **Defining the features and duration of antibody responses to SARS-CoV-2 infection associated with disease severity and outcome.** *Science immunology*
Röltgen, K. n., Powell, A. E., Wirz, O. F., Stevens, B. A., Hogan, C. A., Najeeb, J. n., Hunter, M. n., Wang, H. n., Sahoo, M. K., Huang, C. n., Yamamoto, F. n., Manohar, M. n., Manalac, et al
2020; 5 (54)
 - **Origins and clonal convergence of gastrointestinal IgE+ B cells in human peanut allergy.** *Science immunology*
Hoh, R. A., Joshi, S. A., Lee, J. Y., Martin, B. A., Varma, S. n., Kwok, S. n., Nielsen, S. C., Nejad, P. n., Haraguchi, E. n., Dixit, P. S., Shutthanandan, S. V., Roskin, K. M., Zhang, et al
2020; 5 (45)
 - **Human B Cell Clonal Expansion and Convergent Antibody Responses to SARS-CoV-2.** *Cell host & microbe*
Nielsen, S. C., Yang, F. n., Jackson, K. J., Hoh, R. A., Röltgen, K. n., Jean, G. H., Stevens, B. A., Lee, J. Y., Rustagi, A. n., Rogers, A. J., Powell, A. E., Hunter, M. n., Najeeb, et al
2020
 - **Influenza vaccine-induced human bone marrow plasma cells decline within a year after vaccination.** *Science (New York, N.Y.)*
Davis, C. W., Jackson, K. J., McCausland, M. M., Darce, J. n., Chang, C. n., Linderman, S. L., Chennareddy, C. n., Gerkin, R. n., Brown, S. J., Wrammert, J. n., Mehta, A. K., Cheung, W. C., Boyd, et al
2020
 - **Proinflammatory IgG Fc structures in patients with severe COVID-19** *Nature Immunology*
Chakraborty, S., Gonzales, J., Edwards, K., Mallajosyulla, V., Buzzanco, A. S., Sherwood, R., Buffone, C., Kathale, N., Providenza, S., Xie, M. M., Andrews, J. R., Blish, C. A., Singh, et al
2020
 - **Shaping of infant B cell receptor repertoires by environmental factors and infectious disease.** *Science translational medicine*
Nielsen, S. C., Roskin, K. M., Jackson, K. J., Joshi, S. A., Nejad, P., Lee, J., Wagar, L. E., Pham, T. D., Hoh, R. A., Nguyen, K. D., Tsunemoto, H. Y., Patel, S. B., Tibshirani, et al
2019; 11 (481)

- **Longitudinal Analysis of the Human B Cell Response to Ebola Virus Infection.** *Cell*
Davis, C. W., Jackson, K. J., McElroy, A. K., Halfmann, P. n., Huang, J. n., Chennareddy, C. n., Piper, A. E., Leung, Y. n., Albariño, C. G., Crozier, I. n., Ellebedy, A. H., Sidney, J. n., Sette, et al
2019
- **High-fat diet induces systemic B-cell repertoire changes associated with insulin resistance.** *Mucosal immunology*
Pham, T. D., Chng, M. H., Roskin, K. M., Jackson, K. J., Nguyen, K. D., Glanville, J., Lee, J., Engleman, E. G., Boyd, S. D.
2017
- **Identifying specificity groups in the T cell receptor repertoire.** *Nature*
Glanville, J. n., Huang, H. n., Nau, A. n., Hatton, O. n., Wagar, L. E., Rubelt, F. n., Ji, X. n., Han, A. n., Krams, S. M., Pettus, C. n., Haas, N. n., Arlehamn, C. S., Sette, et al
2017
- **Defining antigen-specific plasmablast and memory B cell subsets in human blood after viral infection or vaccination** *NATURE IMMUNOLOGY*
Ellebedy, A. H., Jackson, K. J., Kissick, H. T., Nakaya, H. I., Davis, C. W., Roskin, K. M., McElroy, A. K., Oshansky, C. M., Elbein, R., Thomas, S., Lyon, G. M., Spiropoulou, C. F., Mehta, et al
2016; 17 (10): 1226-?
- **Broadening Horizons: New Antibodies Against Influenza.** *Cell*
Jackson, K. J., Boyd, S. D.
2016; 166 (3): 532-533
- **Maturation Pathway from Germline to Broad HIV-1 Neutralizer of a CD4-Mimic Antibody.** *Cell*
Bonsignori, M., Zhou, T., Sheng, Z., Chen, L., Gao, F., Joyce, M. G., Ozorowski, G., Chuang, G., Schramm, C. A., Wiehe, K., Alam, S. M., Bradley, T., Gladden, et al
2016; 165 (2): 449-463
- **Diversification of the antigen-specific T cell receptor repertoire after varicella zoster vaccination.** *Science translational medicine*
Qi, Q., Cavanagh, M. M., Le Saux, S., Namkoong, H., Kim, C., Turgano, E., Liu, Y., Wang, C., Mackey, S., Swan, G. E., Dekker, C. L., Olshen, R. A., Boyd, et al
2016; 8 (332): 332ra46-?
- **IgH sequences in common variable immune deficiency reveal altered B cell development and selection.** *Science translational medicine*
Roskin, K. M., Simchoni, N., Liu, Y., Lee, J., Seo, K., Hoh, R. A., Pham, T., Park, J. H., Furman, D., Dekker, C. L., Davis, M. M., James, J. A., Nadeau, et al
2015; 7 (302): 302ra135-?
- **Single B-cell deconvolution of peanut-specific antibody responses in allergic patients.** *The Journal of allergy and clinical immunology*
Hoh, R. A., Joshi, S. A., Liu, Y., Wang, C., Roskin, K. M., Lee, J. Y., Pham, T., Looney, T. J., Jackson, K. J., Dixit, V. P., King, J., Lyu, S. C., Jenks, et al
2015
- **Predicting vaccine responsiveness.** *Cell host & microbe*
Boyd, S. D., Jackson, K. J.
2015; 17 (3): 301-307
- **B-cell repertoire responses to varicella-zoster vaccination in human identical twins.** *Proceedings of the National Academy of Sciences of the United States of America*
Wang, C., Liu, Y., Cavanagh, M. M., Le Saux, S., Qi, Q., Roskin, K. M., Looney, T. J., Lee, J., Dixit, V., Dekker, C. L., Swan, G. E., Goronzy, J. J., Boyd, et al
2015; 112 (2): 500-505
- **Immunoglobulin gene insertions and deletions in the affinity maturation of HIV-1 broadly reactive neutralizing antibodies.** *Cell host & microbe*
Kepler, T. B., Liao, H., Alam, S. M., Bhaskarabhatla, R., Zhang, R., Yandava, C., Stewart, S., Anasti, K., Kelsoe, G., Parks, R., Lloyd, K. E., Stolarchuk, C., Pritchett, et al
2014; 16 (3): 304-313
- **Diversity and clonal selection in the human T-cell repertoire.** *Proceedings of the National Academy of Sciences of the United States of America*
Qi, Q., Liu, Y., Cheng, Y., Glanville, J., Zhang, D., Lee, J., Olshen, R. A., Weyand, C. M., Boyd, S. D., Goronzy, J. J.
2014; 111 (36): 13139-13144
- **HIV-1 Envelope gp41 Antibodies Can Originate from Terminal Ileum B Cells that Share Cross-Reactivity with Commensal Bacteria.** *Cell host & microbe*
Trama, A. M., Moody, M. A., Alam, S. M., Jaeger, F. H., Lockwood, B., Parks, R., Lloyd, K. E., Stolarchuk, C., Scarce, R., Foulger, A., Marshall, D. J., Whitesides, J. F., Jeffries, et al

2014; 16 (2): 215-226

- **Human responses to influenza vaccination show seroconversion signatures and convergent antibody rearrangements.** *Cell host & microbe*
Jackson, K. J., Liu, Y., Roskin, K. M., Glanville, J., Hoh, R. A., Seo, K., Marshall, E. L., Gurley, T. C., Moody, M. A., Haynes, B. F., Walter, E. B., Liao, H., Albrecht, et al
2014; 16 (1): 105-114
- **Effects of Aging, Cytomegalovirus Infection, and EBV Infection on Human B Cell Repertoires** *JOURNAL OF IMMUNOLOGY*
Wang, C., Liu, Y., Xu, L. T., Jackson, K. J., Roskin, K. M., Pham, T. D., Laserson, J., Marshall, E. L., Seo, K., Lee, J., Furman, D., Koller, D., Dekker, et al
2014; 192 (2): 603-611
- **An autoreactive antibody from an SLE/HIV-1 individual broadly neutralizes HIV-1.** *The Journal of clinical investigation*
Bonsignori, M. n., Wiehe, K. n., Grimm, S. K., Lynch, R. n., Yang, G. n., Kozink, D. M., Perrin, F. n., Cooper, A. J., Hwang, K. K., Chen, X. n., Liu, M. n., McKee, K. n., Parks, et al
2014
- **Convergent antibody signatures in human dengue.** *Cell host & microbe*
Parameswaran, P., Liu, Y., Roskin, K. M., Jackson, K. K., Dixit, V. P., Lee, J., Artilis, K. L., Zompi, S., Vargas, M. J., Simen, B. B., Hanczaruk, B., McGowan, K. R., Tariq, et al
2013; 13 (6): 691-700
- **Diagnostic applications of high-throughput DNA sequencing.** *Annual review of pathology*
Boyd, S. D.
2013; 8: 381-410
- **Measurement and Clinical Monitoring of Human Lymphocyte Clonality by Massively Parallel V-D-J Pyrosequencing** *Science Translational Medicine*
Boyd SD, Marshall EL, Merker JD, Maniar JM, Zhang LN, Sahaf B, Jones CD, Simen BB, Hanczaruk B, Nguyen KD, Nadeau KC, Egholm M, Miklos DB, Zehnder JL, Fire AZ
2009; 1 (12)
- **Cellular and humoral immune response to SARS-CoV-2 vaccination and booster dose in immunosuppressed patients: An observational cohort study.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Yang, L. M., Costales, C., Ramanathan, M., Bulterys, P. L., Murugesan, K., Schroers-Martin, J., Alizadeh, A. A., Boyd, S. D., Brown, J. M., Nadeau, K. C., Nadimpalli, S. S., Wang, A. X., Busque, et al
2022; 153: 105217
- **Regulation of the BCR signalosome by the class II peptide editor, H2-M, affects the development and repertoire of innate-like B cells.** *Cell reports*
Ghosh, D., Pham, T. D., Nanaware, P. P., Sengupta, D., Adler, L. N., Li, C. G., He, X., O'Mara, M. E., Kantor, A. B., Nguyen, K. D., Yang, Y., Eisenlohr, L. C., Jensen, et al
1800; 38 (4): 110200
- **Safety, immunogenicity, and protection provided by unadjuvanted and adjuvanted formulations of a recombinant plant-derived virus-like particle vaccine candidate for COVID-19 in nonhuman primates.** *Cellular & molecular immunology*
Pillet, S., Arunachalam, P. S., Andreani, G., Golden, N., Fontenot, J., Aye, P. P., Roltgen, K., Lehmicke, G., Gobeil, P., Dube, C., Trepanier, S., Charland, N., D'Aoust, et al
1800
- **Gastrointestinal T cells reveal differentially expressed transcripts and enriched pathways during peanut oral immunotherapy.** *Allergy*
Zhang, W., Krishna Dhondalay, G., Liu, T. A., Kaushik, A., Hoh, R., Kwok, S., Kambham, N., Fernandez-Becker, N. Q., Andorf, S., Desai, M., Galli, S. J., Boyd, S. D., Nadeau, et al
2022
- **Long Term Accuracy of SARS-CoV-2 Interferon- γ 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
- **Maternal and Infant Immune Repertoire Sequencing Analysis Identifies Distinct Ig and TCR Development in Term and Preterm Infants.** *Journal of immunology (Baltimore, Md. : 1950)*
Le, B. L., Sper, R., Nielsen, S. C., Pineda, S., Nguyen, Q., Lee, J., Boyd, S. D., MacKenzie, T. C., Sirota, M.
2021

- **SARS-CoV-2 Nucleocapsid Plasma Antigen for Diagnosis and Monitoring of COVID-19.** *Clinical chemistry*
Wang, H., Hogan, C. A., Verghese, M., Solis, D., Sibai, M., Huang, C., Roltgen, K., Stevens, B. A., Yamamoto, F., Sahoo, M. K., Zehnder, J., Boyd, S. D., Pinsky, et al
2021
- **Effective Viral Vector SARS-CoV-2 Booster Vaccination in a Patient with Rheumatoid Arthritis after Initial Ineffective mRNA Vaccine Response.** *Arthritis & rheumatology (Hoboken, N.J.)*
Baker, M. C., Mallajosyula, V., Davis, M. M., Boyd, S. D., Nadeau, K. C., Robinson, W. H.
2021
- **Estimated SARS-CoV-2 Seroprevalence in US Patients Receiving Dialysis 1 Year After the Beginning of the COVID-19 Pandemic.** *JAMA network open*
Anand, S., Montez-Rath, M., Han, J., Cadden, L., Hunsader, P., Kerschmann, R., Beyer, P., Boyd, S. D., Garcia, P., Dittrich, M., Block, G. A., Parsonnet, J., Chertow, et al
2021; 4 (7): e2116572
- **Antibody Response to COVID-19 Vaccination in Patients Receiving Dialysis.** *Journal of the American Society of Nephrology : JASN*
Anand, S., Montez-Rath, M., Han, J., Garcia, P., Cadden, L., Hunsader, P., Kerschmann, R., Beyer, P., Dittrich, M., Block, G., Boyd, S., Parsonnet, J., Chertow, et al
2021
- **Serial SARS-CoV-2 Receptor-Binding Domain Antibody Responses in Patients Receiving Dialysis.** *Annals of internal medicine*
Anand, S., Montez-Rath, M. E., Han, J., Garcia, P., Cadden, L., Hunsader, P., Kerschmann, R., Beyer, P., Boyd, S. D., Chertow, G. M., Parsonnet, J.
2021
- **Increased viral variants in children and young adults with impaired humoral immunity and persistent SARS-CoV-2 infection: A consecutive case series.** *EBioMedicine*
Truong, T. T., Ryutov, A., Pandey, U., Yee, R., Goldberg, L., Bhojwani, D., Aguayo-Hiraldo, P., Pinsky, B. A., Pekosz, A., Shen, L., Boyd, S. D., Wirz, O. F., Roltgen, et al
2021; 67: 103355
- **Adjuvanting a subunit COVID-19 vaccine to induce protective immunity.** *Nature*
Arunachalam, P. S., Walls, A. C., Golden, N., Atyeo, C., Fischinger, S., Li, C., Aye, P., Navarro, M. J., Lai, L., Edara, V. V., Roltgen, K., Rogers, K., Shirreff, et al
2021
- **SARS-CoV-2 IgG Seropositivity and Acute Asymptomatic Infection Rate Among Firefighter First Responders in an Early Outbreak County in California.** *Prehospital emergency care : official journal of the National Association of EMS Physicians and the National Association of State EMS Directors*
Newberry, J. A., Gautreau, M., Staats, K., Carrillo, E., Mulkerin, W., Yang, S., Kohn, M. A., Matheson, L., Boyd, S. D., Pinsky, B. A., Blomkalns, A. L., Strehlow, M. C., D'Souza, et al
2021: 1–10
- **Immune Changes Beyond Th2 Pathways During Rapid Multifood Immunotherapy enabled with Omalizumab.** *Allergy*
Manohar, M., Dunham, D., Gupta, S., Yan, Z., Zhang, W., Minnicozzi, S., Kirkey, M., Bunning, B., Chowdhury, R. R., Galli, S. J., Boyd, S. D., Kost, L. E., Chinthrajah, et al
2021
- **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
- **Use of Outpatient-Derived COVID-19 Convalescent Plasma in COVID-19 Patients Before Seroconversion.** *Frontiers in immunology*
Wirz, O. F., Roltgen, K., Stevens, B. A., Pandey, S., Sahoo, M. K., Tolentino, L., Verghese, M., Nguyen, K., Hunter, M., Snow, T. T., Singh, A. R., Blish, C. A., Cochran, et al
2021; 12: 739037
- **Efficient Identification of High-Titer Anti-Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Antibody Plasma Samples by Pooling Method.** *Archives of pathology & laboratory medicine*
Nguyen, K. D., Wirz, O. F., Röltgen, K., Pandey, S., Tolentino, L., Boyd, S. D., Pham, T. D.
2021
- **Antibody Response to COVID-19 vaccination in Patients Receiving Dialysis.** *medRxiv : the preprint server for health sciences*

- Anand, S., Montez-Rath, M. E., Han, J., Garcia, P., Cadden, L., Hunsader, P., Kerschmann, R., Beyer, P., Dittrich, M., Block, G. A., Boyd, S. D., Parsonnet, J., Chertow, et al
2021
- **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
 - **SARS-CoV-2 Seroprevalence in Healthcare Personnel in Northern California Early in the COVID-19 Pandemic.** *Infection control and hospital epidemiology*
Rosser, J. I., Röltgen, K., Dymock, M., Shepard, J., Martin, A., Hogan, C. A., Blomkalns, A., Mathew, R., Parsonnet, J., Pinsky, B. A., Maldonado, Y. A., Boyd, S. D., Chang, et al
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