



Sharon Crane Ph.D.

Counsel

Washington, D.C.

Sharon.Crane@haynesboone.com

+1 202.654.4544

PRACTICES Intellectual Property, Patent Prosecution and Counseling, Patents, Patent Office Trials, Precision Medicine and Digital Health, Life Sciences, Pharmaceuticals, Chemical, Healthcare and Life Sciences, Medical Device and Technology, Biotechnology, Trademark and Advertising

Sharon Crane is a counsel in the Intellectual Property Practice Group in Haynes Boone's Washington, D.C. office.

Her practice focuses on patent prosecution, opinion work, patent interferences, and post-grant practice at the U.S. Patent and Trademark Office Patent Trial and Appeal Board (PTAB). Sharon also provides discerning representation to clients in the biotechnology and pharmaceutical sectors.

Prior to law school, Sharon received a bachelor's degree in Behavioral Biology, studied neuroscience in graduate school, and ultimately obtained a Ph.D. in molecular biology and genetics from Johns Hopkins Medical School, focusing on the biology of lentiviruses. After a post-doc at a large pharmaceutical company, she became a technical specialist at an IP boutique while she attended George Washington Law School. The depth and breadth of her scientific background allows her to effectively counsel her clients in the complex process of translating their innovations into patent applications that are critical to their business development.

Sharon is passionate about issues of diversity, equity, inclusion and accessibility (DEIA) in the legal profession, particularly with regard to the mentoring and inclusion of women. As Deputy Secretary General of a global network of IP attorneys, Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI), she also co-chairs their DEIA and webinar committees, and is a key player in the planning and oversight of patent sessions which are a significant part of FICPI's global meetings. This worldwide network of highly qualified IP colleagues not only keeps her abreast of patent policy around the world, but is an invaluable resource for partnering on the coordination of patent protection for her clients in multiple jurisdictions.

QUALIFICATIONS

EDUCATION

- J.D., George Washington University Law School, 1994
- Ph.D., Molecular Biology and Genetics, Johns Hopkins School of Medicine, 1990

- B.A., Behavioral Biology, Johns Hopkins University, 1984

ADMISSIONS

- District of Columbia
- New Jersey
- New York
- U.S. Patent and Trademark Office

COURT ADMISSIONS

- United States Supreme Court
 - U.S. Court of Appeals for the Federal Circuit
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PUBLICATIONS AND SPEAKING ENGAGEMENTS

- 21st Open Forum, Patent Stream Leader, *FICPI*, London, UK, October 4-7, 2023.
- CLE Webinar Series on Hot Topics in Chemical and Pharmaceutical Patent Practice, Amgen Inc. et al. v. Sanofi et al., speaker, *AIPLA*, September 19-20, 2023.
- "Antibodies: The Challenges Facing Patent Applicants," speaker, *IPWatchdog Life Sciences Masters 2022*, Ashburn, VA, October 26, 2022.
- Eligibility: Whither the Patent System, speaker, *FICPI 2022 World Congress & ExCo*, Cannes, France, September 28, 2022.
- AI and Drug Development: IP Implications for Protecting AI Discoveries, speaker, *IPWatchdog Live 2022*, Dallas, TX, September 12, 2022.
- A Post Doc Bootcamp; Drafting Chemical Claims and Specification: Written Description, speaker, *AIPLA Advanced Chemical/ Pharma Patent Practice Institute*, New Orleans, LA, May 20, 2022.
- Council of Scientific Society Presidents 2022 Spring Leadership Workshop; speaker, Washington, D.C., May 2, 2022.
- Orange Book & Biologic Patents at the PTAB, speaker, *IPWatchdog PTAB Masters 2022*. January 27, 2022.
- Moderator, "Infringement Without Borders in the Digital Age," *FICPI Virtual Forum*, November 2021.
- "Connect, Share & Grow" Webinar Series on Subject Matter Eligibility; speaker, *FICPI Virtual Forum*, September 30, 2020.
- COVID-19 - Life Under Lockdown, webinar, speaker, *FICPI*, April, 22, 2020.
- Pre-conference workshop, speaker, *ACI 3rd Annual Summit on Life Sciences IP Due Diligence*, Boston, MA, November 13, 2019.
- Panelist, "Subject Matter Eligibility in the U.S." for the panel "Is there a Coordinated Move in B+ and Elsewhere?", *Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI) World Congress*, Toronto, Canada, June 6, 2018.
- "CRISPR-Cas9 Patent Landscape and Legal Disputes," co-author, *LES JAPAN NEWS* Vol. 62 no. 2, June, 2021.
- "The Good, the Bad and the Ugly in Recent 101 Decisions," author, *FICPI Journal*, p. 29., Nov 2020.
- "Subject Matter Eligibility Update: Proposals to Modify 35 USC 101," author, *Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI)*, September 12, 2018.
- "USA Court of Appeals for the Federal Circuit Decision Concerning On Sale Bar in Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.," *Fédération Internationale des Conseils en Propriété Industrielle (FICPI)*, August 23, 2017.

- “The University of Rochester Overreaches,” author, *Outs & Ins*, vol. 4, no. 2, 2004.
 - “Degeneracy in the Legal Code: Can the PTO and the Federal Circuit Reach a Consensus Regarding Patenting Biotech Inventions?,” co-author, *4 The Journal of Biolaw and Business* 39-42, 2000.
 - “Identification of the Transmembrane Fusion Domain in the Visna Virus Envelope,” co-author, *185 Virology* 488-492, 1992.
 - “Identification of Cell Membrane Proteins that Bind Visna Virus,” co-author, *65 J. of Virology* 6137-6143, 1991.
 - “Epitopes Responsible for Fusion and Virus Neutralization in the Glycoprotein of Ovine and Caprine Lentiviruses: A Challenge for Vaccine Development,” co-author, *AIDS Vaccine: Basic Research and Clinical Trials*. Putney, S.D. and D. P. Bolognesi (Eds.). Marcel Dekker, Inc. pp. 319-338, 1990.
 - “Fusion and Neutralization Sites on Visna Virus are Separate Epitopes,” co-author, *Cell Biology of Virus Entry, Replication and Pathogenesis*. Compans, R.W., A. Helenius and M. Oldstone (Eds.). Alan R. Liss, Inc. New York, pp. 1-12, 1989.
 - “Lentiviruses of Animals are Biological Models of the Human Immunodeficiency Viruses,” co-author, *5 Microbial Pathogenesis* 149-157, 1988
 - “Separate Epitopes in the Envelope of Visna Virus are Responsible for Fusion and Neutralization: Biological Implications for Anti-fusion Antibodies in Limiting Virus Replication,” co-author, *62 J. of Virology* 2680-2685, 1987.
 - “Identification of Chromaffin Granule-Binding Proteins. Relationship of the Chromobindins to Calelectrin, Synhibin, and the Tyrosine Kinase” co-author, *Substrates p35 and p36*, 262 *The Journal of Biological Chemistry* 1860-1868, 1987.
 - “Mnemonic Correlates of Unit Activity in the Hippocampus,” co-author, *399 Brain Res.* 97-110, 1986
 - “An Electrophysiological Method for Examining the Effects of Potential Therapeutic Agents on Memory Function,” co-author, *444 Annals of the New York Academy of Sciences* 494-495, 1985.
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PROFESSIONAL AFFILIATIONS AND ENGAGEMENTS

- American Bar Association, Intellectual Property Law Section
- American Bar Association, Post Grant and *Inter Partes* Subcommittee
- American Intellectual Property Law Association, Biotechnology Committee, Member
- American Intellectual Property Law Association, Chemical Practice Committee, Member
- American Intellectual Property Law Association, Diversity in IP Committee, Member
- American Intellectual Property Law Association, Emerging Technologies Committee, Member
- American Intellectual Property Law Association, PTAB Trial Committee, Member
- American Intellectual Property Law Association, Women in IP Law Committee, Member
- Federal Circuit Bar Association
- Previous Chair of Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI) CET Group 5-Biotechnology and Pharmaceuticals
- Co-Chair of Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI) DEIA and Webinar Series Committees
- Deputy Secretary General of Fédération Internationale des Conseils en Propriété Intellectuelle (FICPI)
- Intellectual Property Owners Association, U.S. Post-Grant Patent Office Practice Committee, Member
- International Association for the Protection of Industrial Property (AIPPI), Member
- Maryland Patent Law Association: President 2001-2003; Vice President 1999-2001; Treasurer 1996-1999
- New York Intellectual Property Law Association
- U.S. Bar - EPO Liaison Council, Chair, 2006-2008

SELECTED CLIENT REPRESENTATIONS

Litigation

- Life Technologies, Inc. v. Clontech Laboratories, Inc.: District of Maryland; Defended Clontech Laboratories, Inc. against a charge of patent infringement involving Life Technologies' patent on reverse transcriptase with substantially no RNase H
- In re Brimonidine Patent Litigation: District of Delaware; Defended Exela Pharmaceuticals in an infringement action under the Hatch-Waxman Act brought by Allergan regarding brimonidine tartrate used to lower intra-ocular pressure and help alleviate the symptoms of glaucoma
- Geron Corporation v. ViacYTE, Inc.: Northern District of California; Represented ViacYTE in appeal from a patent interference relating to cultures of definitive endoderm cells
- Cellectis S.A. v. Precision Biosciences Inc. et al: District of Delaware; litigation support for Precision Biosciences regarding I-CreI meganucleases
- Precision Biosciences Inc. et al v. Cellectis S.A.: Eastern District of North Carolina; litigation support for Precision Biosciences regarding rationally designed meganucleases
- Johns Hopkins University v. 454 Life Sciences Corporation: District of Delaware; Defended 454 in appeal of interference relating to bead emulsion PCR
Inter Partes Re-examination
- *Inter Partes* Re-examination of U.S. Application Serial No. 95/000,440: Represented Maxygen; relating to G-CSF Analog Compositions and Methods

Interferences

- Life Technologies, Inc. v. Clontech Laboratories, Inc.: District of Maryland; Defended Clontech Laboratories, Inc. against a charge of patent infringement involving Life Technologies' patent on reverse transcriptase with substantially no RNase H
- In re Brimonidine Patent Litigation: District of Delaware; Defended Exela Pharmaceuticals in an infringement action under the Hatch-Waxman Act brought by Allergan regarding brimonidine tartrate used to lower intra-ocular pressure and help alleviate the symptoms of glaucoma
- Geron Corporation v. ViacYTE, Inc.: Northern District of California; Represented ViacYTE in appeal from a patent interference relating to cultures of definitive endoderm cells
- Cellectis S.A. v. Precision Biosciences Inc. et al: District of Delaware; litigation support for Precision Biosciences regarding I-CreI meganucleases
- Precision Biosciences Inc. et al v. Cellectis S.A.: Eastern District of North Carolina; litigation support for Precision Biosciences regarding rationally designed meganucleases
- Johns Hopkins University v. 454 Life Sciences Corporation: District of Delaware; Defended 454 in appeal of interference relating to bead emulsion PCR
- Fiddes v. Baird, Interference No. 102,229: Represented Genentech; relating to basic fibroblast growth factor
- Cabilly v. Boss, Interference No. 102,572: Represented Genentech; relating to chimeric recombinant antibodies
- Singh v. Brake, Interference No. 102,728: Represented Genentech; relating to using alpha factor to express proteins in yeast
- Lee v. Barr, Interference No. 102,208: Represented Genentech; relating to insulin-like growth factor 1
- Hitzeman v. Rutter, Interference No. 102,416: Represented Genentech; relating to expressing hepatitis B surface antigens in yeast
- Glaxo Wellcome Inc. v. Cabilly, Interference No. 104,532: Represented Genentech; relating to expressing antibodies in Chinese hamster ovary cells

- Gluckman v. Lewis, Interference No. 104,553: Represented Genentech; relating to treatment of neural degeneration with IGF-1
- Zambrowicz v. Harrington, Interference No. 105,104: Represented Athersys; relating to non-targeted activation of endogenous genes
- Nemerson v. Genentech, Interference No. 105,134: Represented Genentech; relating to human tissue factor related DNA segments, polypeptides and antibodies
- Scripps Research Institute v. Genentech, Inc., Interference No. 105,135: Represented Genentech; relating to human tissue factor related DNA segments, polypeptides and antibodies
- Short v. Punnonen, Interference No. 105,188: Represented Maxygen; relating to non-stochastic generation of genetic vaccines
- Santarsiero v. DeLucas, Interference No. 105,403: Represented Fluidigm Inc.; relating to crystallization of proteins in nanoliter volumes
- Howell v. Lentz, Interference No. 105,413: Represented Cytologic, Inc.; relating to methods of enhancing immune responses by removing soluble tumor necrosis factor receptor 1 from the blood
- Yu et al (Human Genome Sciences, Inc.) v. Browning et al (Biogen Idec)/ Browning v. Yu, Interference No. 105,485; Represented HGS; relating to LymphoStat-B, a human monoclonal antibody that inhibits the biological activity of B-lymphocyte stimulator (BLyS)
- Conzelmann v. Hong, Interference No. 105,503: Represented Wyeth; relating to recombinant infectious non-segmented negative strand RNA virus
- Short v. Patten, Interference No. 105,532: Represented Maxygen Inc.; relating to polypeptide engineering
- Gladstone Institutes v. Oregon Health and Science University, Interference 105,686: Represented OHSU; relating to methods for identifying an agent that inhibits Vif-mediated degradation of APOBEC3G in a cell
- D'Amour v. Fisk, Interference No. 105,734: Represented Viacyte; relating to cultures of definitive endoderm cells
- Johns Hopkins University v. 454 Life Sciences, Interference No. 105,857: Represented 454; relating to bead emulsion PCR
- Dung v. Buehler, Interference No. 105,893: Represented Endo Pharmaceuticals; relating to oxymorphone hydrochloride salts containing low amounts of alpha-beta unsaturated ketone
- Quake v. Lo, Interference No. 105,920: Represented Stanford; relating to non-invasive methods of detecting aneuploidy
- Fan v. Lo, Interference No. 105,922: Represented Stanford; relating to non-invasive methods of detecting aneuploidy
- Lo v. Quake, Interference No. 105,923: Represented Stanford; relating to non-invasive methods of detecting aneuploid
- Lo v. Quake, Interference No. 105,924: Represented Stanford; relating to non-invasive methods of detecting aneuploidy
- Fiers v. Sugano, Interference No. 105,939: Represented Biogen IDEC MA, Inc.; relating to recombinant DNA for producing human fibroblast interferon-like polypeptides
- Lephart v. Setchell, Interference No. 105,950: Represented Cincinnati Children's Hospital Medical Center and Australian Health & Nutrition Association Limited; relating to compositions and methods for making enantiomeric equol
- Levin v. Pastorio, Interference 105,995: Represented Finchimica S.P.A.; relating to method for the synthesis of 5-amino-1-phenyl-3-cyano-4-trifluoromethyl sulfinyl
- University of Western Australia v. Academisch Ziekenhuis Leiden, Interference No. 106,007: Represented Sarepta Therapeutics, Inc.; relating to antisense oligonucleotides for exon skipping
- University of Western Australia v. Academisch Ziekenhuis Leiden, Interference No. 106,008: Represented Sarepta Therapeutics, Inc.; relating to antisense oligonucleotides for exon skipping
- University of Western Australia v. Academisch Ziekenhuis Leiden, Interference No. 106,013: Represented Sarepta Therapeutics, Inc.; relating to antisense oligonucleotides for exon skipping

- Seattle Children's Research Institute v. Cellectis, Interference No. 106,052: Represented SCRI; relating to relating to Coupling Endonucleases with End-Processing Enzymes Drives High Efficiency Gene Disruption
- Crescendo Bioscience, Inc. v. L. Douglas Graham, PGR2017-00020: Represented Crescendo; relating to methods for selecting treatment methods for rheumatoid arthritis based on an algorithm
- Cani v. Kaplan, Interference No. 106,130: Represented Cani (Universite Catholique De Louvain, Wageningen Universiteit, The Akkermansia Company S.A.): relating to methods of treating metabolic disorders with Akkermansia.

Inter Partes Review and Post-Grant Review

- IPR2014-00337; Represented The Board of Trustees of the Leland Stanford Junior University as Patent Owner in an IPR proceeding filed by Sequenom over patent 8195415, noninvasive diagnosis of fetal aneuploidy by sequencing. All claims were denied institution.
- IPR2013-00390: Represented The Board of Trustees of the Leland Stanford Junior University as Patent Owner in an IPR proceeding filed by Sequenom over patent 8195415, noninvasive diagnosis of fetal aneuploidy by sequencing.
- IPR2014-00160: Represented Endo Pharmaceuticals as Patent Owner in an IPR proceeding filed by Amneal Pharmaceuticals over patent 7851482, method for making analgesics.
- IPR2013-00308: Represented The Board of Trustees of the Leland Stanford Junior University as Patent Owner in an IPR proceeding filed by Ariosa Diagnostics over patent 8296076, noninvasive diagnosis of fetal aneuploidy by sequencing.
- IPR2016-00577: Represented Finchimica S.p.A. as Patent Owner in an IPR proceeding filed by Adama Americas, Adama Makhteshim, Makhteshim Agan of North America, ADAMA Agricultural Solutions, and Control Solutions over patent 8304559, method for the synthesis of 5-amino-1-phenyl-3-cyano-4-trifluoromethyl sulfinyl.
- PGR2017-00020: Represented Myriad Genetics, Oyster Point Blvd., and Crescendo Biosciences as Petitioners in a PGR proceeding against L. Douglas Grama over patent 9387246, treatment for methods for rheumatoid arthritis.

AWARDS AND RECOGNITIONS

- Included in *Washington, D.C. Super Lawyers*, Thomson Reuters, 2018-2023