REFERENCES

Abate, A. R., Seiffert, S., Utada, A. S., Shum, A., Shah, R., Thiele, J., . . . Akartuna, I. (2007). Microfluidic techniques for synthesizing particles.

Abubakar, A., Al-Wahaibi, T., Al-Wahaibi, Y., Al-Hashmi, A., & Al-Ajmi, A. (2014). Roles of drag reducing polymers in single-and multi-phase flows. *Chemical Engineering Research and Design, 92*(11), 2153-2181.

Al-Sarkhi, A. (2010). Drag reduction with polymers in gas-liquid/liquid-liquid flows in pipes: a literature review. *Journal of Natural Gas Science and Engineering, 2*(1), 41-48.

Al-Sarkhi, A. (2012). Effect of mixing on frictional loss reduction by drag reducing polymer in annular horizontal two-phase flows. *International Journal of Multiphase Flow, 39*, 186-192.

Al-Sarkhi, A., & Hanratty, T. (2001). Effect of pipe diameter on the performance of drag-reducing polymers in annular gas-liquid flows. *Chemical Engineering Research and Design, 79*(4), 402-408.

Association, A. H. (2015). Heart disease and stroke statistics—at a glance.

Bajus, M. (2012). Mircochannel - Technologies. *Petroleum & Coal, 54*(3), 294-300.

Bayraktar, T., & Pidugu, S. B. (2006). Characterization of liquid flows in microfluidic systems. *International Journal of Heat and Mass Transfer*, *49*(5), 815-824.

Becker, H., & Heim, U. (2000). Hot embossing as a method for the fabrication of polymer high aspect ratio structures. *Sensors and Actuators A: Physical, 83*(1), 130-135.

Becker, H., & Locascio, L. E. (2002). Polymer microfluidic devices. *Talanta, 56*(2), 267-287.

Becker, H., Dietz, W., & Dannberg, P. (1998). *Microfluidic manifolds by polymer hot embossing for μ-TAS applications.* Paper presented at the Micro Total Analysis Systems' 98.

Bessa, K., Belletati, J., Dos Santos, L., Rossoni, L., & Ortiz, J. (2011). Drag reduction by polyethylene glycol in the tail arterial bed of normotensive and hypertensive rats. *Brazilian Journal of Medical and Biological Research, 44*(8), 767-777.

Burger, E. D., Munk, W. R., & Wahl, H. A. (1982). Flow increase in the Trans Alaska Pipeline through use of a polymeric drag-reducing additive. *Journal of Petroleum Technology, 34*(02), 377-386.

Castro, W., & Neuwirth, J. (1971). Reducing fluid friction with okra. *CHEMTECH, P 697-701, NOVEMBER 1971. 10 FIG, 15 REF. OWRR A-009-SC (4).*

Chen, X., Zha, D., Xiu, J., Liao, Y., Cui, K., Lin, H., . . . Zhou, B. (2011). A new hydrodynamic approach by infusion of drag-reducing polymers to improve left ventricular function in rats with myocardial infarction. *International journal of cardiology, 147*(1), 112-117.

Coleman, P. B., Ottenbreit, B. T., & Polimeni, P. I. (1987). Effects of a drag-reducing polyelectrolyte of microscopic linear dimension (Separan AP-273) on rat hemodynamics. *Circulation research, 61*(6), 787-796.

Cotoia, A., Kameneva, M. V., Marascalco, P. J., Fink, M. P., & Delude, R. L. (2009). Drag-reducing hyaluronic acid increases survival in profoundly hemorrhaged rats. *Shock, 31*(3), 258-261.

de Bessa, K. L., & Ortiz, J. P. Drag Reduction in Vascular System.

Den Toonder, J., Hulsen, M., Kuiken, G., & Nieuwstadt, F. (1997). Drag reduction by polymer additives in a turbulent pipe flow: numerical and laboratory experiments. *Journal of Fluid Mechanics, 337*, 193-231.

Do, Jaephil, Sehwan Lee, Jungyup Han, Junhai Kai, Chien-Chong Hong, Chuan Gao, Joseph H. Nevin, Gregory Beaucage and Chong H. Ahn. 2008. "Development of functional lab-on-a-chip on polymer for point-of-care testing of metabolic parameters." *Lab on a Chip* no. 8 (12):2113-2120. DOI: 10.1039/B811169C. *Encyclopedia.com: http://www.encyclopedia.com/doc/1G2-3404000141.html*

Fiorini, G. S., & Chiu, D. T. (2005). Disposable microfluidic devices: fabrication, function, and application. *BioTechniques, 38*(3), 429-446.

Flores, A., & Wang, M. R. (2010). *Soft lithographic fabrication of micro optic and guided wave devices*. INTECH Open Access Publisher.

Friedewald, William T. (2002). "Cardiovascular Diseases". *Encyclopedia of Public Health.* Retrieved March 09, 2016 from

Haraldsson, K. T. (2005). Fabrication of polymeric microfluidic devices via photocurable liquid monomers.

Herold, K. E., & Rasooly, A. (2009). *Lab on a Chip Technology: Fabrication and microfluidics* (Vol. 1): Horizon Scientific Press.
http://www.multi-science.co.uk/ijfc.htm

Hung, L.-H., & Lee, A. P. (2007). Microfluidic devices for the synthesis of nanoparticles and biomaterials. *Journal of Medical and Biological Engineering, 27*(1), 1.

Hutchison, K., Campbell, J., & Karpinski, E. (1989). Decreased poststenotic flow disturbance during drag reduction by polyacrylamide infusion without increased aortic blood flow. *Microvascular research, 38*(1), 102-109.

Ivanyuta, Y.F., N.V. Naumchuk, V.G. Pogrebnyak, S. V. Tverdokhleb, S. Ya. Frenkel. (1985). Flow Structure of Aqueous Solutions of Polyethylene Oxide in the Inlet Region of Short Capillaries. *Journal of engineering physics, 49*(4), 1192-1197.

Jo, B.-H., Van Lerberghe, L. M., Motsegood, K. M., & Beebe, D. J. (2000). Three-dimensional micro-channel fabrication in polydimethylsiloxane (PDMS) elastomer. *Microelectromechanical Systems, Journal of, 9*(1), 76-81.

Kakehi, K., Kinoshita, M., & Yasueda, S.-i. (2003). Hyaluronic acid: separation and biological implications. *Journal of Chromatography B, 797*(1), 347-355.

Kamarulizam, S. N. B., Bari, H. A. A., & Arumugam, N. (2011). Studying the potential of slag waste particle as suspended solid drag reducing agent. *Paper presented at the Communication Software and Networks (ICCSN), 2011 IEEE 3rd International Conference on.*

Kameneva, M. V., Wu, Z. J., Uraysh, A., Repko, B., Litwak, K. N., Billiar, T. R., . . . Borovetz, H. S. (2004). Blood soluble drag-reducing polymers prevent lethality from hemorrhagic shock in acute animal experiments. *Biorheology, 41*(1), 53-64.

Kameneva, M.V., et al., *Blood Soluble Drag-Reducing Polymers Prevent Lethality from Hemorrhagic Shock in Acute Animal Experiments.* Biorheology, 2004. **41**: p. 53–64.

Kane, R., Stroock, A., Jeon, N., Ingber, D. E., & Whitesides, G. M. (2002). Soft lithography and microfluidics. *Optical Biosensors: Present and Future, FS Ligler and CA Rowe Taitt (editors), Elsevier Science, BV, Amsterdam, Netherlands*, 571-595.

Kendra V. Sharp, Ronald J. Adrian, Juan G. Santiago, Joshua I. Molho. (2005). Liquid Flows in Microchannels. *MEMS Background and fundamentals*. 1-3.

Kim, H. J. (2005). Measurements of temperature and flow fields with sub-millimeter spatial resolution using two-color laser induced fluorescence (LIF) and micro-particle image velocimetry (PIV). *Journal of mechanical science and technology*, *19*(2), 716-727.

Krajnovic, P. S. (2015). Flow Control in Aerodynamics of Vehicles and Bluff Bodies. *International Journal of Flow Control, 7.* Retrieved March 09, 2016 from

Lee, J. N., Park, C., & Whitesides, G. M. (2003). Solvent compatibility of poly (dimethylsiloxane)-based microfluidic devices. *Analytical chemistry*, *75*(23), 6544-6554.

Li, F.-C., Yu, B., Wei, J.-J., & Kawaguchi, Y. (2012). *Turbulent drag reduction by surfactant additives*: John Wiley & Sons.

Lima, R., S. Wada, S. Tanaka, M. Takeda, T. Ishikawa, K. Tsubota, Y. Imai and T. Yamaguchi. 2008. "In vitro blood flow in a rectangular PDMS microchannel: experimental observations using a confocal micro-PIV system." *Biomed Microdevices* no. 10 (2):153-67. DOI: 10.1007/s10544-007-9121-z.

Lima, R., Wada S., Tanaka S., Takeda M., Ishikawa T., Tsubota, K., Imai S., and Yamaguchi, T. (2008). In Vitro Blood Flow In A Rectangular PDMS Microchannel: Experimental Observations Using A Confocal Micro-PIV System. *Biomedical Microdevices*, *10*(2), 153-167.

Ling, F., Ming, W., Hayder, A., Bari, A., Noraishah, A. L., & Somaye, H. (2006). Insoluble Nano-powders Additives Enhancing the Flow of Liquid in Microchannel: Effect of Particle Size.

Liu, Jikun, Bingchen Du, Panhe Zhang, Mohan Haleyurgirisetty, Jiangqin Zhao, Viswanath Ragupathy, Sherwin Lee, Don L. DeVoe and Indira K. Hewlett. 2014. "Development of a microchip Europium nanoparticle immunoassay for sensitive point-of-care HIV detection." *Biosensors and Bioelectronics* no. 61:177-183. DOI: 10.1016/j.bios.2014.04.057.

Marhefka, J. N. (2007). *Study of drag reducing polymers and mechanisms of their intravascular effect.* University of Pittsburgh.

Marhefka, J. N., Marascalco, P. J., Chapman, T. M., Russell, A. J., & Kameneva, M. V. (2006). Poly (N-vinylformamide) A Drag-Reducing Polymer for Biomedical Applications. *Biomacromolecules, 7*(5), 1597-1603.

Marhefka, J. N., Marascalco, P. J., Chapman, T. M., Russell, A. J., & Kameneva, M. V. (2006). Poly (N-vinylformamide) A Drag-Reducing Polymer for Biomedical Applications. *Biomacromolecules, 7*(5), 1597-1603.

Marhefka, J. N., Moon-Massat, P. F., Dubé, G. P., Light, W. R., Freilich, D. A., Russell, A. J., & Kameneva, M. V. (2014). Blood soluble polymers for enhancing near-vessel-wall RBC traffic in presence of hemoglobin based oxygen carrier. *International Journal of Engineering Science, 83*, 138-145.

Marhefka, J., Blyskun, E., Zhou, R., Marascalco, P., & Kameneva, M. (2006). Effects of Drag-Reducing Polymers On Blood Flow In Microchannels. *ASAIO Journal, 52*(2), 12A.

McCormick, R. M., Nelson, R. J., Alonso-Amigo, M. G., Benvegnu, D. J., & Hooper, H. H. (1997). Microchannel electrophoretic separations of DNA in injection-molded plastic substrates. *Analytical chemistry, 69*(14), 2626-2630.

Mowla, D., & Naderi, A. (2006). Experimental study of drag reduction by a polymeric additive in slug two-phase flow of crude oil and air in horizontal pipes. *Chemical Engineering Science, 61*(5), 1549-1554.

Nason, F., E. Morganti, C. Collini, C. Ress, S. Bersini, G. Pennati, F. Boschetti, A. Colombini, G. Lombardi, G. Banfi, L. Lorenzelli and G. Dubini. 2011. "Design of microfluidic devices for drug screening on in-vitro cells for osteoporosis therapies." *Microelectronic Engineering* no. 88 (8):1801-1806. DOI: 10.1016/j.mee.2011.02.115.

Novo, P., V. Chu and J. P. Conde. 2014. "Integrated optical detection of autonomous capillary microfluidic immunoassays:a hand-held point-of-care prototype." *Biosensors and Bioelectronics* no. 57:284-291. DOI: 10.1016/j.bios.2014.02.009.

Pacella, J. J., Kameneva, M. V., Csikari, M., Lu, E., & Villanueva, F. S. (2006). A novel hydrodynamic approach to the treatment of coronary artery disease. *European heart journal, 27*(19), 2362-2369.

Paegel, Brian M., Robert G. Blazej and Richard A. Mathies. 2003. "Microfluidic devices for DNA sequencing: sample preparation and electrophoretic analysis." *Current Opinion in Biotechnology* no. 14 (1):42-50. DOI: 10.1016/S0958-1669(02)00004-6.

Pan, Xiaoyan, Lei Jiang, Kaiying Liu, Bingcheng Lin and Jianhua Qin. 2010. "A microfluidic device integrated with multichamber polymerase chain reaction and multichannel separation for genetic analysis." *Analytica Chimica Acta* no. 674 (1):110-115. DOI: 10.1016/j.aca.2010.06.005.

Pihl, J., Sinclair, J., Karlsson, M., & Orwar, O. (2005). Microfluidics for cell-based assays. *Materials Today, 8*(12), 46-51.

Pogrebnyak, V.G., V.S. Voloshin, and N.V. Naumchuk. (2005). Nonstationary Flow of Solutions of Flexible-Chain Polymers in A Porous Medium. *Journal of Engineering Physics and Thermophysics*, *78*(5), 963-968.

Polimeni, P. I., Al-Sadir, J., & Cutilletta, A. F. (1979). Polysaccharide for enhancement of cardiac output: Google Patents.

Pratt, Erica D., Chao Huang, Benjamin G. Hawkins, Jason P. Gleghorn and Brian J. Kirby. 2011. "Rare cell capture in microfluidic devices." *Chemical Engineering Science* no. 66 (7):1508-1522. DOI: 10.1016/j.ces.2010.09.012.

Pribush, A., Lev Hatzkelzon, Dan Meyerstein, Naomi Meyerstein. (2013). The Mechanism of the Polymer-Induced Drag Reduction in Blood. *Colloids and Surfaces B: Biointerfaces*, *103*(0), 354-359.

Raffaghello, L., Lee, C., Safdie, F. M., Wei, M., Madia, F., Bianchi, G., & Longo, V. D. (2008). Starvation-dependent differential stress resistance protects normal but not cancer cells against high-dose chemotherapy. *Proceedings of the National Academy of Sciences*, *105*(24), 8215-8220.

Richard E. Klabunde, P. D. (2011). Cardiovascular Physiology Concepts (Edition 2 ed.). *Indiana Lippincott Williams & Wilkins, 2011*.

Rivet, C., Lee, H., Hirsch, A., Hamilton, S., & Lu, H. (2011). Microfluidics for medical diagnostics and biosensors. *Chemical Engineering Science*, *66*(7), 1490-1507.

Roberts, M. A., Rossier, J. S., Bercier, P., & Girault, H. (1997). UV laser machined polymer substrates for the development of microdiagnostic systems. *Analytical chemistry*, *69*(11), 2035-2042.

Rodrigues, R. O., Lima, R., Gomes, H. T., & Silva, A. M. (2015). Polymer microfluidic devices: an overview of fabrication methods. *U. Porto Journal of Engineering*, *1*(1), 67-79.

Rodrigues, R. O., Lima, R., Gomes, H. T., & Silva, A. M. (2015). Polymer microfluidic devices: an overview of fabrication methods. *U. Porto Journal of Engineering*, *1*(1), 67-79.

Rolland, J. P., Van Dam, R. M., Schorzman, D. A., Quake, S. R., & DeSimone, J. M. (2004). Solvent-resistant photocurable “liquid teflon” for microfluidic device fabrication. *Journal of the american chemical society*, *126*(8), 2322-2323.

Sakai, T., Repko, B., Griffith, B., Waters, J., & Kameneva, M. (2007). IV infusion of a drag-reducing polymer extracted from aloe vera prolonged survival time in a rat model of acute myocardial ischaemia. *British journal of anaesthesia*, *98*(1), 23-28.

Santiago, J. G., Wereley, S. T., Meinhart, C. D., Beebe, D. J., & Adrian, R. J. (1998). A particle image velocimetry system for microfluidics.*Experiments in fluids*, *25*(4), 316-319.

Shi, Jian, Li Liu and Yong Chen. 2011. "Investigation of cell culture in microfluidic devices with different bi-layer substrates." *Microelectronic Engineering* no. 88 (8):1693-1697. DOI: 10.1016/j.mee.2011.01.047.

Shinohara, K., Sugii, Y., Aota, A., Hibara, A., Tokeshi, M., Kitamori, T., & Okamoto, K. (2004). High-speed micro-PIV measurements of transient flow in microfluidic devices. *Measurement science and Technology*, *15*(10), 1965.

Singhal, J., Pinho, D., Lopes, R., C Sousa, P., Garcia, V., Schütte, H., ... & Gassmann, S. (2015). Blood flow visualization and measurements in microfluidic devices fabricated by a micromilling technique. *Micro and Nanosystems*, *7*(3), 148-153.

Stenberg, E., Persson, B., Roos, H., & Urbaniczky, C. (1991). Quantitative determination of surface concentration of protein with surface plasmon resonance using radiolabeled proteins. *Journal of colloid and interface science*, *143*(2), 513-526.

Sugii, Y., Okuda, R., Okamoto, K., & Madarame, H. (2005). Velocity measurement of both red blood cells and plasma of in vitro blood flow using high-speed micro PIV technique. *Measurement science and Technology*,*16*(5), 1126.

Thais, L., Gatski, T. B., & Mompean, G. (2013). Analysis of polymer drag reduction mechanisms from energy budgets. *International Journal of Heat and Fluid Flow*, *43*, 52-61.

Wang, R. J., Lin, J. Z., & Xie, H. B. (2006). Velocity measurement of flow in the microchannel with barriers using Micro-PIV. *Journal of visualization*, *9*(2), 209-217.

Weibel, D. B., & Whitesides, G. M. (2006). Applications of microfluidics in chemical biology. *Current Opinion in Chemical Biology*, *10*(6), 584-591.

Whitesides, G. M. (2006). The origins and the future of microfluidics. *Nature*, *442*(7101), 368-373.

Whitesides, G. M., Ostuni, E., Takayama, S., Jiang, X., & Ingber, D. E. (2001). Soft lithography in biology and biochemistry. *Annual review of biomedical engineering, 3*(1), 335-373.

Williamson, K., & Masters, K. (2011). *Techniques Labs for Macroscale and Microscale Organic Experiments*: Cengage Learning.

Xia, Y., & Whitesides, G. M. (1998). Soft lithography. *Annual review of materials science, 28*(1), 153-184.

Zhao, C.-X. (2013). Multiphase flow microfluidics for the production of single or multiple emulsions for drug delivery. *Advanced Drug Delivery Reviews, 65*(11), 1420-1446.

Zhao, R., Marhefka, J., Antaki, J. F., & Kameneva, M. V. (2010). Drag-reducing polymers diminish near-wall concentration of platelets in microchannel blood flow. *Biorheology, 47*(3-4), 193-203.

Zhao, X.-M., Xia, Y., & Whitesides, G. M. (1997). Soft lithographic methods for nano-fabrication. *J. Mater. Chem., 7*(7), 1069-1074.