

- Abe A**, Hiraoka M and Shayman JA (2006). Positional specificity of lysosomal phospholipase A2. *J Lipid Res* 47, 2268–2279.
- Aho HJ**, Ahola RA, Tolvanen AM and Nevalainen TJ (1983). Experimental pancreatitis in the rat. Changes in pulmonary phospholipids during sodium taurocholate-induced acute pancreatitis. *Res Exp Med* 182, 79–84 .
- Allen JN**, Moore SA, Pope-Harman AL, Marsh CB and Wewers MD (1995). Immunosuppressive properties of surfactant and plasma on alveolar macrophages. *J Lab Clin Med* 125, 356–369.
- Arbibe L**, Koumanov K, Vial D, Rougeot C, Faure G, Havet N, Longacre S, Vargaftig BB, Béréziat G, Voelker DR, Wolf C and Touqui L (1998). Generation of lyso-phospholipids from surfactant in acute lung injury is mediated by type-II phospholipase A2 and inhibited by a direct surfactant protein A-phospholipase A2 protein interaction. *J Clin Investig* 102, 1152–1160.
- Asaoka Y**, Oka M, Yoshida N and Nishizuka Y (1991). Lysophosphatidylcholine as possible second messenger synergistic to diacylglycerol and calcium ion for T-lymphocyte activation. *Biochem Biophys Res Commun* 178, 1378–1385.
- Ashbaugh DG**, Bigelow DB, Petty TL and Levine BE (1967). Acute respiratory distress in adults. *Lancet*. 2, 319–323 .
- Balestrieri B** and Arm JP (2006). Group V sPLA2: classical and novel functions. *Biochim Biophys Acta* 1761, 1280–1288.
- Balsinde J**, Perez R, and Balboa MA (2006). Calcium-independent phospholipase A2 and apoptosis. *Biochim Biophys Acta* 1761, 1344–1350.
- Barnes PJ** (1990). Reactive oxygen species and airway inflammation. *Free Rad Biol Med* 9, 235-43.
- Barnes PJ** (1995). Nitric oxide and airway disease. *Ann Med* 27, 389-393.
- Barton GM** and Medzhitov R (2003). Toll-like receptor signaling pathways. *Science* 300, 1524–1525.
- Batenburg JJ** (1992). Surfactant phospholipids: synthesis and storage. *Am J Physiol* 262, L367–L385.
- Batenburg JJ** and Haagsman HP (1998). The lipids of pulmonary surfactant: dynamics and interactions with proteins. *Prog Lipid Res* 37, 235–276.
- Batenburg JJ** and Van Golde LMG (1979). Formation of pulmonary surfactant in whole lung and in isolated type II alveolar cells. In: *Reviews in Perinatal Medicine*, edited by E. M. Scarpelli and E. V. Cosmi, New York: Raven, 3, 73-114.
- Batenburg JJ**, Ossendorp BC, Snoek GT, Wirtz KW, Houweling M and Elfring RH (1994). Phospholipid-transfer proteins and their mRNAs in developing rat lung and in alveolar type-II cells. *Biochem J* 298, 223–229.
- Bennett M**, Uauy R and Grundy S M (1987). Dietary fatty acid effects on T-cell-mediated immunity in mice infected with mycoplasma pulmonis or given carcinogens by injection. *Am J Pathol* 126, 103-113.
- Beppu OS**, Clements JA and Goerke J (1983). Phosphatidylglycerol-deficient lung surfactant has normal properties. *J Appl Physiol* 55, 496–502.
- Bernard GR**, Artigas A, Brigham KL, Carlet J, Falke K, Hudson L, Lamy M, Legall JR, Morris A and Spragg R (1994). The American- European Consensus Conference on ARDS. Definitions, mechanisms, relevant outcomes, and clinical trial coordination. *Am. J. Respir. Crit. Care Med.* 149, 818–824.

- Bhatia M**, Brady M, Shokuhi S, Christmas S, Neoptolemos JP and Slavin J (2000). Inflammatory mediators in acute pancreatitis. *J Pathol* 190, 117–125.
- Bhatia M**, Brady M, Zagorski J, Christmas SE, Campbell F, Neoptolemos JP and Slavin J (2000a). Treatment with neutralising antibody against cytokine induced neutrophil chemoattractant (CINC) protects rats against acute pancreatitis associated lung injury. *Gut* 47, 838–844.
- Billah MM** and Anthes JC (1990). The regulation and cellular functions of phosphatidylcholine hydrolysis. *Biochem J* 269 (2), 281.
- Birch EE**, Birch DG, Hoffman DR and Uauy R (1992). Dietary essential fatty acid supply and visual acuity development. *Invest Ophthalmol Vis Sci* 33, 3242–3253.
- Bohnsack JF** and Brown EJ (1986). The role of the spleen in resistance to infection. *Annu Rev Med* 37, 49–59.
- Borish LC** and Steinke JW II (2003). Cytokines and chemokines. *J Allergy Clin Immunol* 111, S460–S475.
- Boumann HA**, Gubbens J, Koorengel MC, Oh CS, Martin CE, Heck AJ, Patton-Vogt J, Henry SA, de Kruijff B and de Kroon AI (2006). Depletion of phosphatidylcholine in yeast induces shortening and increased saturation of the lipid acyl chains: evidence for regulation of intrinsic membrane curvature in a eukaryote. *Mol Biol Cell* 17, 1006–1017.
- Bradford MM** (1976). A rapid and sensitive method for quantitation of microgram quantities of protein utilizing the principle of protein-dye-binding. *Anal Biochem* 72, 248–54.
- Brady M**, Bhatia M, Christmas S, Boyd MT, Neoptolemos JP and Slavin J (2002). Expression of the chemokines MCP-1/JE and cytokine-induced neutrophil chemoattractant in early acute pancreatitis. *Pancreas* 25, 260–269.
- Brasch F**, Birzele J, Ochs M, Guttentag SH, Schoch OD, Boehler A, Beers MF, Müller KM, Hawgood S and Johnen G (2004). Surfactant proteins in pulmonary alveolar proteinosis in adults. *Eur Respir J* 24, 426–435.
- Brigham KL** and Meyrick B (1986). Endotoxin and lung injury. *Am. Rev. Respir. Dis.* 133, 913–927.
- Brunswick M**, Bonvini E, Francis M, Felder CC, Hoffman T and Mond J (1990). Absence of demonstrable phospholipid turnover in B cells stimulated by low mitogenic concentrations of dextran-anti-immunoglobulin conjugates. *Eur J Immunol* 20(4), 855–861.
- Budinger GR** and Sznajder JI (2006). The alveolar-epithelial barrier: a target for potential therapy. *Clinics in chest medicine* 27(4), 655–669.
- Buttke TM** (1984). Inhibition of lymphocyte proliferation by free fatty acids. I. Differential effects on mouse B and T lymphocytes. *Immunology* 53, 235–242 .
- Calder PC**, Yaqoob P, Harvey DJ, Watts A and Newsholme EA (1994). Incorporation of fatty acids by concanavalin A-stimulated lymphocytes and the effect on fatty acid composition and membrane fluidity. *Biochem J* 300, 509–518.
- Carroll KK** (1991). Dietary fats and cancer. *Am J Clin Nutr* 53, 1064S–1067S.
- Chabot F**, Mitchell JA, Gutteridge JM and Evans TW (1998). Reactive oxygen species in acute lung injury. *Eur Respir J* 11, 745–757.
- Chabot S**, Koumanov K, Lambeau G, Gelb MH, Balloy V, Chignard M, Whitsett JA and Touqui L (2003). Inhibitory effects of surfactant protein A on surfactant phospholipid hydrolysis by secreted phospholipases A2. *J Immunol* 171, 995–1000.

- Chaby R**, Morelec MJ, Ensergueix D and Girard R (1986). Membrane glycolipid and phospholipid composition of lipopolysaccharide-responsive and nonresponsive murine B lymphocytes. *Infect Immun* 52(3), 777-785.
- Chao W**, Spragg RG and Smith RM (1995). Inhibitory effect of porcine surfactant on the respiratory burst oxidase in human neutrophils. *J Clin Invest* 96, 2654–2660.
- Chen C**, Arjomandi M, Balmes J, Tager I and Holland N (2007). Effects of chronic and acute ozone exposure on lipid peroxidation and antioxidant capacity in healthy young adults. *Environ Health Perspect* 115, 1732-7.
- Chen JW**, Dodia C, Feinstein SI, Jain MK and Fisher AB (2000). 1-Cys peroxiredoxin, a bifunctional enzyme with glutathione peroxidase and phospholipase A2 activities. *J Biol Chem* 275, 28421–28427.
- Chen X**, Hyatt BA, Mucenski ML, Mason RJ and Shannon JM (2006). Identification and characterization of a lysophosphatidylcholine acyltransferase in alveolar type II cells. *Proc Natl Acad Sci USA* 103, 11724–11729.
- Chew BP**, Wong TS, Shultz TD and Magnuson NS (1997). Effects of conjugated dienoic derivatives of linoleic acid and beta-carotene in modulating lymphocyte and macrophage function. *Anticancer Res* 17, 1099–1106.
- Ciencewicki J**, Trivedi S and Kleeberger SR (2008). Oxidants and the pathogenesis of lung diseases. *J Allergy Clin Immunol* 122, 456-68.
- Clement A** and Housset B (1996). Role of free radicals in airway injury. In: *Environmental impact on the airways*. Chretien J, Dusser D, eds. New York: Dekker, 355-79.
- Clements J** (1956). Dependence of pressure-volume characteristics of lungs on intrinsic surface- active material. *Am J Physiol* 1956, 187:592
- Clermont G**, Angus DC, Linde-Zwirble WT, Griffin MF, Fine MJ & Pinsky MR (2002). Does acute organ dysfunction predict patient-centered outcomes? *Chest* 121, 1963–1971.
- Crapo JD**, Barry BE, Gehr P, Bachofen M and Weibel ER (1982). Cell number and cell characteristics of the normal human lung. *Am Rev Respir Dis* 126, 332-337.
- Creuwels LA**, van Golde LM and Haagsman HP (1997). The pulmonary surfactant system: biochemical and clinical aspects. *Lung* 175, 1-39.
- Cross CE**, van der Vliet A, O'Neill CA and Eiserich JP (1994). Reactive oxygen species and the lung. *Lancet* 344, 930-933.
- Cui Z** and Houweling M (2002). Phosphatidylcholine and cell death. *Biochimica et Biophysica Acta* 1585 (2-3), 87-96.
- Davis PJ**, Fleming BD, Coolbear KP and Keough KM (1981). Gel to liquid-crystalline transition temperatures of water dispersions of two pairs of positional isomers of unsaturated mixed-acid phosphatidylcholines. *Biochemistry* 20, 3633–3636.
- De Burbure CY**, Heilier JF, Neve J, Becker A, Albrecht C, Borm PJ, et al. (2007). Lung permeability, antioxidant status, and NO₂ inhalation: a selenium supplementation study in rats. *J Toxicol Environ Health A* 70, 284-94.
- De Caterina R**, Caprioli R, Giannesi D, Sicari R, Galli C, Lazzarini G, Bernini W, Carr L and Rindi P (1993). n-3 fatty acids reduce proteinuria in patients with chronic glomerular disease. *Kidney Int* 44, 843–850.

- DeLong CJ**, Shen YJ, Thomas MJ and Cui Z (1999). Molecular distinction of phosphatidylcholine synthesis between the CDP- choline pathway and phosphatidylethanolamine methylation pathway. *J Biol Chem* 274, 29683– 29688.
- Dematte JE**, Barnard ML and Sznajder JI (1997). Acute respiratory failure in sepsis. In: *Sepsis and Multiorgan Failure*, edited by Fein AM and Abraham EM. Baltimore, MD: Williams & Wilkins, pp. 668–679.
- Dietl P**, Haller T, Mair N and Frick M (2001). Mechanisms of surfactant exocytosis in alveolar type II cells in vitro and in vivo. *News Physiol Sci* 16, 239–243.
- Dobbs LG** (1990). Isolation and culture of alveolar type II cells. *Am J Physiol* 258, L134-147.
- Dobbs LG**, Gonzalez R and Williams MC (1986). An improved method for isolating type II cells in high yield and purity. *Am Rev Res Dis* 134, 141-145.
- Dombrowsky H**, Tschernig T, Vieten G, Rau GA, Ohler F, Acevedo C, Behrens C, Poets CF, von der Hardt H and Bernhard W (2006). Molecular and functional changes of pulmonary surfactant in response to hyperoxia. *Pediatr Pulmonol* 41, 1025–1039.
- Drury RAB** and Wallington EA (1980). Carleton's histological technique. Oxford University Press, Oxford.
- Egan BM**, Bouchier-Hayes DJ, Condron C, et al. (2002). Taurolidine attenuates the hemodynamic and respiratory changes associated with endotoxaemia. *Shock* 17, 308–311.
- Egberts J** and Noort WA (1986). Gestational age-dependent changes in plasma inositol levels and surfactant composition in fetal rat. *Pediatr Res* 20, 24-27.
- Elsayed NM**, Gorbunov NV, Mayorga MA, Kagan VE and Januszkiewicz AJ (2002). Significant pulmonary response to a brief high-level, nose-only nitrogen dioxide exposure: an interspecies dosimetry perspective. *Toxicol Appl Pharmacol* 184, 1-10.
- Ergonul Z**, Erdem A, Balkanci ZD and Kilinc K (2007). Vitamin E protects against lipid peroxidation due to cold-SO₂ coexposure in mouse lung. *Inhal Toxicol* 19, 161-8.
- Erickson KL** (1986). Dietary fat modulation of immune response. *Int J Immunopharmacol* 8(6), 529-543.
- Erickson KL**, McNeill CJ, Gershwin ME and Ossmann JB (1980). Influence of dietary fat concentration and saturation on immune ontogeny in mice. *J Nutr* 110, 1555-1572.
- Exton JH** (1994). Phosphatidylcholine breakdown and signal transduction. *Biochim Biophys Acta* 1212, 26-42.
- Fein AM** and Calalang-Colucci MG (2000). Acute lung injury and acute respiratory distress syndrome in sepsis and septic shock. *Crit. Care Clin.* 16, 289–317.
- Fenton MJ** and Golenbock DT (1998). LPS-binding proteins and receptors. *J Leukoc Biol* 64, 25–32.
- Ferber E**, Egabriel G, De Pasquale GG and Resch K (1975). Phospholipid metabolism of stimulated lymphocytes composition of phospholipid fatty acids. *Biochim Biophys Acta* 398(3), 364-376.
- Filgueiras OM** and Possmayer F (1990). Purification and characterization of a phospholipase A₂ associated with rabbit lung microsomes: some evidence for its mitochondrial origin. *Biochim Biophys Acta* 1046, 258–266.
- Finley TN** and Ladman AJ (1972). Low yield of pulmonary surfactant in cigarette smokers. *N Engl J Med* 286, 223-227.

- Fisher AB** and Dodia C (2001). Lysosomal-type PLA2 and turnover of alveolar DPPC. *Am J Physiol Lung Cell Mol Physiol* 280, L748–L754.
- Folch JM**, Lees T and Sloane stanely GH (1957). A simple method for the isolation and purification of total lipids from animal tissues. *J Biol Chem* 226 (1), 497-510.
- Freedman SD**, Katz MH, Parker EM, Laposata M, Urman MY and Alvarez JG (1999). A membrane lipid imbalance plays a role in the phenotypic expression of cystic fibrosis in *cftr*(-/-) mice. *Proc Natl Acad Sci U.S.A.* 96, 13995–14000.
- Funkhouser JD**, Batenburg JJ and Van Golde LM (1981). Acylation of 1-palmitoyl-lysophosphatidylglycerol in a alveolar type II cells from rat lung. *Biochim Biophys Acta* 666, 1–6.
- Galey HF**, Davies MJ and Webster NR (1996). Xanthine oxidase activity and free radical generation in patients with sepsis syndrome. *Crit Care Med* 24, 1649-1653.
- Gaston B**, Drazen JM, Loscalzo J and Stamler JS (1994). The biology of nitrogen oxides in the airways. *Am J Respir Crit Care Med* 149, 538-51.
- Gilmore TD** (2006). Introduction to NF-kappaB: players, pathways, perspectives. *Oncogene* 25, 6680–6684.
- Glauser MP**, Zanetti G, Baumgartner JD and Cohen J (1991). Septic shock: pathogenesis. *Lancet* 338, 732–736.
- Goerke J** (1998). Pulmonary surfactant: functions and molecular composition. *Biochim Biophys Acta* 1408, 79-89.
- Gonzalez R**, Yang YH, Griffin C, Allen L, Tigue Z and Dobbs L (2005). Freshly isolated rat alveolar type I cells, type II cells, and cultured type II cells have distinct molecular phenotypes. *Am J Physiol Lung Cell Mol Physiol* 288, L179–L189.
- Goodman RB**, Strieter RM, Frevert CW, Cummings CJ, Tekampolson P, Kunkel SL, Walz A and Martin TR (1998). Quantitative comparison of C-X-C chemokines produced by endotoxin-stimulated human alveolar macrophages. *Am J Physiol Lung Cell Mol Physiol* 275, L87–L95.
- Goppelt-Striibe M** and Resch K (1987). Polyunsaturated fatty acids are enriched in the plasma membranes of mitogen-stimulated T-lymphocytes. *Biochim Biophys Acta* 904, 22-28.
- Gourgoulianis KI**, Domali A and Molyvdas PA (1999). Airway responsiveness: role of inflammation, epithelium damage and smooth muscle tension. *Mediators of inflammation* 8(4-5), 261-263.
- Grab LT**, Kearns MW, Morris AJ and Daniel LW (2004). Differential role for phospholipase D1 and phospholipase D2 in 12-O-tetradecanoyl-13-phorbol acetate-stimulated MAPK activation, Cox-2 and IL-8 expression. *Biochim Biophys Acta* 1636 (1), 29.
- Gregory TJ**, Longmore WJ, Moxley MA, Whitsett JA, Reed CR, Fowler AA 3rd, Hudson LD, Maunder RJ, Crim C and Hyers TM (1991). Surfactant chemical composition and biophysical activity in Acute Respiratory Distress Syndrome. *J Clin Invest* 88, 1976–1981.
- Griese M** (1999). Pulmonary surfactant in health and human lung diseases: state of the art. *Eur Respir J* 13, 1455-76.
- Griese M**, Birrer P and Demirsoy A (1997). Pulmonary surfactant in cystic fibrosis. *Eur Respir J* 10, 1983–1988.
- Gross G**, Danzl M, Fischer W and Brand K (1988). Alterations of cellular lipids in rat thymocytes during cell cycle progression. *Biochimica et Biophysica Acta* 962, 220-226.

- Gunther A**, Ruppert C, Schmidt R, et al. (2001). Surfactant alteration and replacement in acute respiratory distress syndrome. *Respir Res* 2, 353–364.
- Gunther A**, Siebert C, Schmidt R, Ziegler S, Grimminger F, Yabut M, Temmesfeld B, Walmrath D, Morr H and Seeger W (1996). Surfactant alterations in severe pneumonia, acute respiratory distress syndrome, and cardiogenic lung edema. *Am J Respir Crit Care Med* 153, 176–184.
- Günther A**, Walmrath D, Grimminger F and Seeger W (2001). Pathophysiology of acute lung injury. *Semin Respir Crit Care Med* 22, 247–258.
- Guo X**, Lin HM, Lin Z, et al. (2001). Surfactant protein gene A, B, and D marker alleles in chronic obstructive pulmonary disease of a Mexican population. *Eur Respir J* 18, 482–490.
- Gurel O**, Ikegami M, Choroneos ZC and Jobe AH (2001). Macrophage and type II cell catabolism of SP-A and saturated phosphatidylcholine in mouse lungs. *Am J Physiol Lung Cell Mol Physiol* 280, L1266–72.
- Gurr MI** (1983). The role of lipids in the regulation of the immune system. *Prog Lipid Res* 22(4), 257–287.
- Guthmann F**, Harrach-Ruprecht B, Looman AC, Stevens PA, Robenek H and Rustow B (1997). Interaction of lipoproteins with type II pneumocytes in vitro: morphological studies, uptake kinetics and secretion rate of cholesterol. *Eur J Cell Biol* 74, 197–207.
- Gutteridge JMC** and Halliwell B (1994). *Antioxidants in nutrition, health and disease*. Oxford: Oxford University Press.
- Halliday HL** (2008). Surfactants: Past, present and future. *J Perinatol* 28 Suppl 1, S47–56.
- Halliwell B** and Gutteridge JMC (1989). *Free radicals in biology and medicine*. Oxford: Oxford University Press, 543.
- Halliwell B**, Gutteridge JMC and Cross CE (1992). Free radicals, antioxidants and human disease: where are we now? *J Lab Clin Med* 119, 598–620.
- Hallman M** and Gluck L (1980). Formation of acidic phospholipids in rabbit lung during perinatal development. *Pediatr Res* 14, 1250–1259.
- Hallman M**, Enhorning G and Possmayer F (1985). Composition and surface activity of normal and phosphatidylglycerol-deficient lung surfactant. *Pediatr Res* 19, 286–292.
- Hallman M**, Kulovich M, Kirkpatrick E, Sugarman RG and Gluck L (1976). Phosphatidylinositol and phosphatidylglycerol in amniotic fluid: indices of lung maturity. *Am J Obstet Gynecol* 125, 613–617.
- Hallman M**, Spragg R, Harrell JH, Moser KM and Gluck L (1982). Evidence of lung surfactant abnormality in respiratory failure. *J Clin Invest* 70, 673–683.
- Hallman M**, Spragg R, Harrell JH, Moser KM and Gluck L (1982). Evidence of lung surfactant abnormality in respiratory failure. *J Clin Invest* 70, 673–683.
- Hamm H**, Fabel H and Bartsch W (1992). The surfactant system of the adult lung: physiology and clinical perspectives. *Clin-Investig.* 70, 637–57.
- Hammond SM**, Altshuller YM, Sung T, Rudge SA, Rose K, Engebrecht J, Morris AJ and Frohman MA (1995). Human ADP-ribosylation factor-activated phosphatidylcholinespecific phospholipase D defines a new and highly conserved gene family. *J Biol Chem* 270, 29 640 – 29 643.
- Hansen K** and Singer DB (2001). Asplenic-hyposplenic overwhelming sepsis: postsplenectomy sepsis revisited, *Pediatr Dev Pathol* 4, 105–121.

- Harwood JL** and Richards RJ (1985). Lung Surfactant. *Mol Aspects Med* 8, 423-514.
- Haskell CA**, Cleary MD and Charo IF (1999). Molecular uncoupling of fractalkine-mediated cell adhesion and signal transduction. Rapid flow arrest of CX3CR1-expressing cells is independent of G-protein activation. *J Biol Chem* 274, 10053–10058.
- Haubrich WS** (1997). Medical meanings, Philadelphia, Pa: *American College of Physicians*, 225.
- Hawco MW**, Davis PJ and Keough KM (1981). Lipid fluidity in lung surfactant: monolayers of saturated and unsaturated lecithins. *J Appl Physiol* 51, 509–515.
- Hayek MG**, Han SN, Wu D, Watkins BA, Meydani M, Dorsey JL, Smith DE and Meydani SN (1999). Dietary conjugated linoleic acid influences the immune response of young and old C57BL/6NCrlBR mice. *J Nutr* 129(1), 32–38.
- He D**, Natarajan V, Stern R, Gorshkova IA, Solway J, Spannhake EW and hao Y (2008). Lysophosphatidic acid-induced transactivation of epidermal growth factor receptor regulates cyclo-oxygenase-2 expression and prostaglandin E(2) release via C/EBPbeta in human bronchial epithelial cells. *Biochem J* 412 (1), 153.
- He H**, Genovese KJ, Nisbet DJ and Kogut MH (2006). Involvement of phosphatidylinositol-phospholipase C in immune response to Salmonella lipopolysaccharide in chicken macrophage cells (HD11). *Int Immunopharmacol* 6 (12), 1780.
- Hibbeln JR** and Salem Jr. N (1995). Dietary polyunsaturated fatty acids and depression: when cholesterol does not satisfy. *Am J Clin Nutr* 62, 1–9.
- Hiraoka M**, Abe A, Lu Y, Yang K, Han X, Gross RW and Shayman JA (2006). Lysosomal phospholipase A2 and phospholipidosis. *Mol Cell Biol* 26, 6139–6148.
- Hite RD**, Seeds MC, Bowton DL, Grier BL, Safta AM, Balkrishnan R, Waite BM and Bass DA (2005). Surfactant phospholipid changes after antigen challenge: a role for phosphatidylglycerol in dysfunction. *Am J Physiol Lung Cell Mol Physiol* 288, 610-617.
- Hite RD**, Seeds MC, Jacinto RB, Balasubramanian R, Waite M and Bass D (1998). Hydrolysis of surfactant-associated phosphatidylcholine by mammalian secretory phospholipases A2. *Am J Physiol* 275, L740–L747.
- Hoffman RD**, Kligerman M, Sundt TM, Anderson ND and Shin HS (1982). Stereospecific chemoattractant of lymphoblastic cells by gradients of lysophosphatidylcholine. *Proc Natl Acad Sci USA* 79, 3285–3289.
- Hohlfeld J**, Fabel H and Hamm H (1997). The role of pulmonary surfactant in obstructive airways disease. *Eur Respir J* 10, 482-491.
- Holm BA**, Keicher L, Liu M, Sokolowski J and Enhorning G (1991). Inhibition of pulmonary surfactant by phospholipases. *J Appl Physiol* 71, 317–321.
- Homer RJ**, Zheng T, Chupp G, He S, Zhu Z, Chen Q, Ma B, Hite RD, Gobran LI, Rooney SA and Elias JA (2002). Pulmonary type II cell hypertrophy and pulmonary lipoproteinosis are features of chronic IL-13 exposure. *Am J Physiol Lung Cell Mol Physiol* 283, L52–L59.
- Honda Y**, Tsunematsu K, Suzuki A and Akino T (1988). Changes in phospholipids in bronchoalveolar lavage fluid of patients with interstitial lung diseases. *Lung* 166, 293–301.
- Hong R** (2001). The thymus: finally getting some respect. *Chest Surg Clin N Am* 11, 295–310.
- Hughes DA** and Haslam PL (1989). Changes in phosphatidylglycerol in bronchoalveolar lavage fluids from patients with cryptogenic fibrosing alveolitis. *Chest* 95, 82–89.



- Hulsmann AR**, Raatgeep HR, den Hollander JC, Stijnen T, Saxena PR, Kerrebijn KF and de Jongste JC (1994). Oxidative epithelial damage produces hyperresponsiveness of human peripheral airways. *Am J Res crit care med* 149, 519-525.
- Hulsmann AR**, Raatgeep HR, den Hollander JC, Stijnen T, Saxena PR, Kerrebijn KF and de Jongste JC (1994). *American journal of respiratory and critical care medicine* 149, 519-525.
- Hybertson BM**, Lee YM, Cho HG, Cho OJ and Repine JE (2000). Alveolar type II cell abnormalities and peroxide formation in lungs of rats given IL-1 intratracheally. *Inflammation* 24, 289–303.
- Ikegami M**, Na CL, Korfhagen TR and Whitsett JA (2005). Surfactant protein d influences surfactant ultrastructure and uptake by alveolar type ii cells. *Am J Physiol Lung Cell Mol Physiol* 288, L552-561.
- Ikegami M**, Scoville EA, Grant S, Korfhagen T, Brondyk W, Scheule RK and Whitsett JA (2007). Surfactant protein-d and surfactant inhibit endotoxin-induced pulmonary inflammation. *Chest* 132, 1447-1454.
- Ingenito EP**, Mora R and Mark L (2000). Pivotal role of anionic phospholipids in determining dynamic behavior of lung surfactant. *Am J Respir Crit Care Med* 161, 831–838.
- Jacobs MT**, Frush DP and Donnelly LF (1999). The right place at the wrong time: historical perspective of the relation of the thymus gland and pediatric radiology. *Radiology* 210, 11–16.
- Jia T** and Pamer EG (2009). Immunology. Dispensable But Not Irrelevant. *Science*, 325, 549-550.
- Jiang F**, Caraway NP, Nebiyu Bekele B, Zhang HZ, Khanna A, Wang H, et al. (2005). Surfactant protein A gene deletion and prognostics for patients with stage I non-small cell lung cancer. *Clin Cancer Res* 11, 5417–24.
- Jobe AH** (2002). Lung Development and Maturation, Neonatal–Perinatal Medicine, Mosby, St. Louis.
- Johnson MD**, Bao HF, Helms MN, Chen XJ, Tighe Z, Jain L, Dobbs LG and Eaton DC (2006). Functional ion channels in pulmonary alveolar type I cells support a role for type I cells in lung ion transport. *Proc Natl Acad Sci USA* 103, 4964–4969.
- Juresic GC**, Blagovic B and Rupcic J (2009). Alterations in Phosphatidylcholine and Phosphatidylethanolamine Content During Fermentative Metabolism in *Saccharomyces cerevisiae* Brewer’s Yeast; *Food Technol. Biotechnol*, 47, 246–252.
- Kabir K**, Gelinas JP, Chen M, Chen D, Zhang D, Luo X, Yang JH, Carter D and Rabinovici R (2002). Characterization of a murine model of endotoxin-induced acute lung injury. *Shock* 17, 300–303.
- Kawato S**, Kinoshita N, Jr. and Ikegami A (1978). Effect of cholesterol on the molecular motion in the hydrocarbon region of lecithin bilayers studied by nanosecond fluorescence techniques. *Biochemistry* 17, 5026-5031.
- Keller JN**, Mark RJ, Bruce AJ, Blanc E, Rothstein JD, Uchida K, et al. (1997). 4-Hydroxynonenal, an aldehydic product of membrane lipid peroxidation, impairs glutamate transport and mitochondrial function in synaptosomes. *Neuroscience* 806, 85-96.
- Kim SY**, Ahn BH, Min KJ, Lee YH, Joe EH and Min DS (2004). Phospholipase D isozymes mediate epigallocatechin gallate-induced cyclooxygenase-2 expression in astrocyte cells. *J Biol Chem* 279 (37), 38125.
- Kitsiouli E**, Nakos G and Lekka ME (2009). Phospholipase A2 subclasses in acute respiratory distress syndrome. *Biochim Biophys Acta* 1792, 941-953.
- Knapp HR** (1995). Omega-3 fatty acids in respiratory diseases: a review. *J Am Coll Nutr* 14, 18–23.



- Knight DA** and Holgate ST (2003). The airway epithelium: structural and functional properties in health and disease. *Respirology* 8(4), 432-446.
- Koch G**, Lok BD, Van Oudenaren A and Benner R (1982). The capacity and mechanism of bone marrow antibody formation by thymus-independent antigens, *J Immunol* 128, 1497-1501.
- Korfhagen TR**, Sheftelyevich V, Burhans MS, Bruno MD, Ross GF, Wert SE, Stahlman MT, Jobe AH, Ikegami M, Whitsett JA and Fisher JH (1998). Surfactant protein-d regulates surfactant phospholipid homeostasis in vivo. *J Biol Chem* 273, 28438-28443.
- Kremer JM**, Lawrence DA, Jubiz W, DiGiacomo R, Rynes R, Bartholomew LE and Sherman M (1990). Dietary fish oil and olive oil supplementation in patients with rheumatoid arthritis. Clinical and immunologic effects. *Arthritis Rheum* 33, 810-820.
- Kremlev SG**, Unstead TM and Phelps DS (1994). Effects of surfactant protein A and surfactant lipids on lymphocyte proliferation *in vitro*. *Am J*
- Kruijff BD** (2006). Membranes, where lipids and proteins meet. *Chem Phys Lipids* 143, 41-42.
- Kubo K**, Amari T, Kaneki T, Hanaoka M, Hayano T, Miyahara T, Koyama S, Koizumi T, Fujimoto K and Kobayashi T (1999). A 21-aminosteroid, U-74006F, attenuates endotoxin-induced lung injury in awake sheep. *Respirology* 4, 167-172.
- Kuby TJ**, Barbara AO and Richard AG (2007). Immunology, Sixth Edition *Practical experience in the laboratory of cellular and molecular immunology*. W. H Freeman and Company.
- Kumar KV**, Rao SM, Gayani R, Mohan IK and Naidu MU (2000). Oxidant stress and essential fatty acids in patients with risk and established ARDS. *Clin Chim Acta* 298, 111-120.
- Kume NK**, Cybulsky MI and Gimbrone MA (1992). Lysophosphatidylcholine, a component of atherogenic lipoprotein, induces mononuclear leukocyte adhesion molecules in cultured human and rabbit arterial endothelial cells. *J Clin Invest* 90:1138-1144.
- Kuronuma K**, Mitsuzawa H, Takeda K, Nishitani C, Chan ED, Kuroki Y, Nakamura M, Voelker DR (2009). Anionic pulmonary surfactant phospholipids inhibit inflammatory responses from alveolar macrophages and U937 cells by binding the lipopolysaccharide-interacting proteins CD14 and MD-2. *J Biol Chem* 284, 25488-25500.
- Kusner DJ**, Hall CF and Schlesinger LS (1996). Activation of phospholipase D is tightly coupled to the phagocytosis of *Mycobacterium tuberculosis* or opsonized zymosan by human macrophages. *J Exp Med* 184, 585-595.
- Lands WE** (1958). Metabolism of glycerolipides; a comparison of lecithin and triglyceride synthesis. *J Biol Chem* 231, 883 - 888 .
- Lands WEM** and Crawford CG (1976). Enzymes of membrane phospholipid metabolism in animals: *In The Enzymes of Biological Membranes* (Martonosi A, ed.) Plenum Press, New York, 2, 3-85.
- Lee TH** and Austen KF (1986). Arachidonic acid metabolism by the 5-lipoxygenase pathway, and the effects of alternative dietary fatty acids. *Adv Immunol* 39, 145-175.
- Lee YM**, Hybertson BM, Cho HG, Terada LS, Cho O, Repine AJ and Repine JE (2000). Platelet-activating factor contributes to acute lung leak in rats given interleukin-1 intratracheally. *Am J Physiol Lung Cell Mol Physiol* 279, L75-L80.
- Leff JA**, Parsons PE, Day CE, Moore EE, Moore FA, Oppegard MA and Repine JE (1992). Increased serum catalase activity in septic patients with the adult respiratory distress syndrome. *Am Rev Respir Dis* 146, 985-989.

- Leff JA**, Parsons PE, Day CE, Taniguchi N, Jochum M, Fritz H, Moore FA, Moore EE, McCord JM and Repine JE (1993). Serum antioxidants as predictors of adult respiratory distress syndrome in patients with sepsis. *Lancet* 34, 777-780.
- Leme AS**, Lichtenstein A, Arantes-Costa FM, Landucci ECT and Martins MA (2002). Acute lung injury in experimental pancreatitis in rats: Pulmonary protective effects of crotafotin and N-acetylcysteine. *Shock* 18, 428-433.
- LeVine AM**, Kurak KE, Bruno MD, Stark JM, Whitsett JA and Korfhagen TR (1998). Surfactant protein-a-deficient mice are susceptible to pseudomonas aeruginosa infection. *Am J Respir Cell Mol Biol* 19, 700-708.
- LeVine AM**, Lotze A, Stanley C, Stroud O'Donnell R, Whitsett J and Pollack MM (1996). Surfactant content in children with inflammatory lung disease. *Crit Care Med* 24, 1062-1067.
- Lewis JF** and Jobe AH (1993). Surfactant and the adult respiratory distress syndrome. *Am Rev Respir Dis* 147, 218-233.
- Liau DF**, Barrett CR, Bell AL and Ryan SF (1985). Normal surface properties of phosphatidylglycerol-deficient surfactant from dog after acute lung injury. *J Lipid Res* 26, 1338-1344.
- Lindhal**, M, Hede AR and Tagesson C (1986). Lysophosphatidylcholine increases airway and capillary permeability in the isolated perfused rat lung. *Exp Lung Res* 11, 1-12.
- Liu X** and Meng Z (2005). Effects of airborne fine particulate matter on antioxidant capacity and lipid peroxidation in multiple organs of rats. *Inhal Toxicol* 17, 467-73.
- Loscalzo**, Joseph, Fauci, Anthony S, Braunwald, Eugene, Dennis L, Kasper, Hauser, Stephen L, Longo and Dan L (2008). *Harrison's principles of internal medicine*. McGraw-Hill Medical.
- Maccacchini ML** and Burger MM (1977). Stimulation of lymphocytes by concanavalin A. Temperature-dependent effect of fatty acid replacements. *Biochim Biophys Acta* 469(1), 33-44.
- Maes M**, Smith R, Christophe A, Cosyns P, Desnyder R and Meltzer H (1996). Fatty acid composition in major depression: decreased omega 3 fractions in cholesteryl esters and increased C20:4 omega 6/C20:5 omega 3 ratio in cholesteryl esters and phospholipids. *J Affect Disord* 38, 35-46.
- Maes M**, Smith R, Christophe A, Vandoolaeghe E, Van Gastel A, Neels H, Demedts P, Wauters A and Meltzer HY (1997). Lower serum high-density lipoprotein cholesterol (HDL-C) in major depression and in depressed men with serious suicidal attempts: relationship with immune-inflammatory markers. *Acta Psychiatr Scand* 95, 212-221.
- Marinetti GV**, Erbland J, Albrecht M and Elmer Stotz (1958). Time study of incorporation *in vivo* of ³²P-orthophosphate into phosphatides of rat tissues. *Biochimica et Biophysica Acta*. 30, 543-548.
- Marklund S** and Marklund G (1974). Involvement of the superoxide anion radical in the autooxidation of pyrogallol and a convenient assay for superoxide dismutase. *Eur J Biochem* 47, 469-474.
- Martin TR** and Goodman RB (1999). The role of chemokines in the Pathophysiology of the Acute Respiratory Distress Syndrome (ARDS). In: *Chemokines in Disease: Biology and Clinical Research*, edited by Hebert CA. Totowa, NJ: Humana press.
- Mason RJ** and Voelker DR (1998). Regulatory mechanisms of surfactant secretion. *Biochim Biophys Acta* 1408, 226 - 40.
- Mason RJ**, Pan T, Edeen KE, Nielsen LD, Zhang F, Longphre M, Eckart MR and Neben S (2003). Keratinocyte growth factor and the transcription factors C/EBP alpha, C/EBP delta, and SREBP-1c regulate fatty acid synthesis in alveolar type II cells. *J Clin Invest* 112, 244-255.

- Masuda S**, Murakami M, Mitsuishi M, Komiyama K, Ishikawa Y, Ishii T and Kudo I (2005). Expression of secretory phospholipase A2 enzymes in lungs of humans with pneumonia and their potential prostaglandin-synthetic function in human lung-derived cells. *Biochem J* 387, 27–38.
- Matsuda T**, Onda MM, Miyashita M and Matsuda N (1995). Endotoxin-induced lung injury: The roles of leukocytes and oxidants, and the efficacies of steroids and antioxidants. *Nippon Ika Daigaku Zasshi* 62, 150-60.
- Matthay MA** and Zemans RL (2011). The Acute Respiratory Distress Syndrome: Pathogenesis and Treatment. *Annu Rev Pathol* 6, 147–163.
- Matthay MA**, Robriquet L and Fang X (2005). Alveolar epithelium: role in lung fluid balance and acute lung injury. *Proceedings of the American Thoracic Society* 2(3), 206-213.
- Matthay MA**, Robriquet L and Fang X (2005). *Proceedings of the American Thoracic Society* 2(3), 206-213.
- Matusiewicz SP**, Williamson IJ, Sime PJ, Brown PH, Wenham RP, Crompton GK and Greening AP (1993). Plasma lactate dehydrogenase: a marker of disease activity in cryptogenic fibrosing alveolitis and extrinsic allergic alveolitis? *Eur Respir J* 6 (9), 1282–1286.
- May MT** (1968). Galen on the usefulness of the parts of the body. *Ithaca, NY: Cornell University Press*, 30.
- McLennan P**, Howe P, Abeywardena M, Muggli R, Raederstorff D, Mano M, Rayner T and Head R (1996). The cardiovascular protective role of docosahexaenoic acid. *Eur J Pharmacol* 300, 83–89.
- Meade CJ** and Mertin J (1978). Fatty acids and immunity. *Adv Lipid Res* 16, 127-165.
- Mebius RE** and Kraal G (2005). Structure and function of the spleen. *Nat Rev Immunol* 5(8), 606-16.
- Meduri GU**, Chinn AJ, Leeper KV, Wunderink RG, Tolley E, Winer-Muram HT, Khare V and Eltorky M (1994). Corticosteroid rescue treatment of progressive fibroproliferation in late ARDS. Patterns of response and predictors of outcome. *Chest* 105, 1516–1527.
- Medzhitov R** (2001). Toll-like receptors and innate immunity. *Nat Rev Immunol* 1, 135–145.
- Mitsopoulos P**, Omri A, Alipour M, Vermeulen N, Smith MG and Suntres ZE (2008). Effectiveness of liposomal-N-acetylcysteine against LPS-induced lung injuries in rodents. *Int J Pharm* 363(1-2), 106-111.
- Moron MS**, Depierre JW and Mannervik B (1979). Levels of glutathione, glutathione reductase and glutathione-S-transferase activities in rat lung and liver. *Biochem Biophys Acta* 582, 67–78.
- Morrison WR** and Smith LM (1964). Preparation of fatty acid methyl esters and dimethylacetals from lipids with boron fluoridemethanol. *J Lipid Res* 5, 600–608.
- Murakami H**, Nakao A, Kishimoto W, Nakano M and Takagi H (1995). Detection of O₂-generation and neutrophil accumulation in rat lungs after acute necrotizing pancreatitis. *Surgery* 118, 547–554.
- Muthukumar K**, Rajakumar S, Sarkar MN and Nachiappan V (2011). Glutathione peroxidase3 of *Saccharomyces cerevisiae* protects phospholipids during cadmium-induced oxidative stress. *Antonie Van Leeuwenhoek* 99(4), 761-71.
- Nagai Y**, Akashi S, Nagafuku M, Ogata M, Iwakura Y, Akira S, Kitamura T, Kosugi A, Kimoto M and Miyake K (2002). Essential role of MD-2 in LPS responsiveness and TLR4 distribution. *Nat Immunol* 3, 667–672.
- Nakanishi H**, Shindou H, Hishikawa D, Harayama T, Ogasawara R, Suwabe A, Taguchi R and Shimizu T (2006). Cloning and characterization of mouse lung-type acyl-CoA:lysophosphatidylcholine

acyltransferase 1 (LPCAT1). Expression in alveolar type II cells and possible involvement in surfactant production. *J Biol Chem* 281(29), 20140-7.

Napolitano LM (2002). Pulmonary consequences of acute pancreatitis: critical role of the neutrophil. *Crit Care Med* 30, 2158-2159.

Neergaard K (1929). New interpretations of basic concepts of respiratory mechanics. Correlation of pulmonary recoil force with surface tension in the alveoli. *Z Gesumte Exp Med* 66, 373-394, (In: *Translations in Respiratory Physiology*, edited by J. B. West. Stroudsburg, PA: Dowden, Hutchinson & Ross, 1975.)

Nesslein LL, Melton KR, Ikegami M, Na CL, Wert SE, Rice WR, Whitsett JA and Weaver TE (2005). Partial sp-b deficiency perturbs lung function and causes air space abnormalities. *Am J Physiol Lung Cell Mol Physiol* 288, L1154-1161.

Niewoehner DE, Rice K, Sinha AA and Wangenstein D (1987). Injurious effects of lysophatidylcholine on barrier properties of alveolar epithelium. *J Appl Physiol* 63, 1979-1986.

Nogee LM (2002). Abnormal expression of surfactant protein C and lung disease. *Am J Respir Cell Mol Biol* 26, 641-644.

Notter RH (2000). Lung Surfactant: Basic Science and Clinical Applications. Marcel Dekker, Inc., New York.

Numata M, Chu HW, Dakhama A and Voelker DR (2010). Pulmonary surfactant phosphatidylglycerol inhibits respiratory syncytial virus-induced inflammation and infection. *Proc Natl Acad Sci USA* 107, 320-325.

Ohkawa H, Ohishi N and Yagi K (1979). Assay of lipid peroxides in animal tissue by thiobarbituric acid reaction. *Anal Biochem* 95, 351-358.

Ohlmeier S, Vuolanto M, Toljamo T *et al.* (2008). Proteomics of human lung tissue identifies surfactant protein A as a marker of chronic obstructive pulmonary disease. *J Proteome Res* 7, 5125-5132.

Ohtsuki M, Taketomi Y, Arata S, Masuda S, Ishikawa Y, Ishii T, Takanezawa Y, Aoki J, Arai H, Yamamoto K, Kudo I and Murakami M (2006). Transgenic expression of group V, but not group X, secreted phospholipase A2 in mice leads to neonatal lethality because of lung dysfunction. *J Biol Chem* 281, 36420-36433.

Okamoto K, Kim JS and Rubin BK (2007). Secretory phospholipases A2 stimulate mucus secretion, induce airway inflammation, and produce secretory hyperresponsiveness to neutrophil elastase in ferret trachea. *Am J Physiol Lung Cell Mol Physiol* 292, 62-67.

Omaye ST, Turnbull JD and Sauberlich HE (1979). Selected methods for the determination of ascorbic acid in animal cells, tissues and fluids. *Methods Enzymol* 62, 3-11.

Ordway RW, Singer JJ and Walsh JV (1991). Direct regulation of ion channels by fatty acids. *Trends Neurosci* 14, 96-100.

Orgeig S and Daniels CB (2001). The roles of cholesterol in pulmonary surfactant: insights from comparative and evolutionary studies. *Comp Biochem Physiol A Mol Integr Physiol* 129, 75-89.

Oulton M, Moores HK, Scott JE, Janigan DT and Hajela R (1991). Effects of Smoke Inhalation on Surfactant Phospholipids and Phospholipase A₂ Activity in the Mouse Lung. *Am J Pathol* 138, 195-202.

Pan ZZ, Parkyn L, Ray A and Ray P (2000). Inducible lung-specific expression of RANTES: preferential recruitment of neutrophils. *Am J Physiol Lung Cell Mol Physiol* 279, L658-L666.

Pattle RE (1955). Properties, function and origin of the alveolar lining layer. *Nature* 175, 1125-1126.



- Pavlovic J**, Papagaroufalis C, Xanthou M, Liu W, Fan R, Thomas NJ, Apostolidou I, Papathoma E, Megaloyianni E, DiAngelo S and Floros J (2006). Genetic variants of surfactant proteins a, b, c, and d in bronchopulmonary dysplasia. *Dis Markers* 22, 277-291.
- Pawlosky RJ**, Salem Jr. N (1995). Ethanol exposure causes a decrease in docosahexaenoic acid and an increase in docosapentaenoic acid in feline brains and retinas. *Am J Clin Nutr* 61, 1284-1289.
- Peet M**, Murphy B, Shay J and Horrobin D, (1998). Depletion of omega-3 fatty acid levels in red blood cell membranes of depressive patients. *Biol Psychiatry* 43, 315-319.
- Pérez-Gil J** and Keough KM (1998). Interfacial properties of surfactant proteins. *Biochim. Biophys. Acta* 1408, 203-217.
- Perez-Gil J** and Weaver TE (2010). Pulmonary surfactant pathophysiology: current models and open questions. *Physiology (Bethesda)* 25,132-41.
- Perez-Gil J**, Casals C and Marsh D (1995). Interactions of hydrophobic lung surfactant proteins SP-B and SP-C with dipalmitoylphosphatidylcholine and dipalmitoylphosphatidylglycerol bilayers studied by electron spin resonance spectroscopy. *Biochemistry* 34, 3964-3971.
- Pison U**, Gono E, Joka T, Obertacke U and Obladen M (1986). High-performance liquid chromatography of adult human bronchoalveolar lavage: assay for phospholipid lung profile. *J Chromatography* 377, 79-89.
- Pison U**, Herold R and Schürch S (1996). The pulmonary surfactant system: biological functions, components, physicochemical properties and alterations during lung disease. *Colloids and Surfaces. A, Physicochemical and Engineering Aspects*. 114, 165-184.
- Poltorak A**, He X, Smirnova I, Liu MY, Van Huffel C, Du X, Birdwell D, Alejos E, Silva M, Galanos C, Freudenberg M, Ricciardi-Castagnoli P, Layton B and Beutler B (1998). Defective LPS signaling in C3H/HeJ and C57BL/10ScCr mice: mutations in Tlr4 gene. *Science* 282, 2085-2088.
- Postle AD**, Heeley EL and Wilton DC (2001). A comparison of the molecular species compositions of mammalian lung surfactant phospholipids. *Comp Biochem Physiol A* 129, 65-73.
- Pourbohloul S**, Mallett GS and Buttke TM (1985). Inhibition of lymphocyte proliferation by free fatty acids. III. Modulation of thymus-dependent immune responses. *Immunology* 56, 659-666.
- Prescott GJ**, Cohen GR, Elton RA, Fowkes FG and Agius RM (1998). Urban air pollution and cardiopulmonary ill health: a 14.5 year time series study. *Occup Environ Med* 55, 697-704.
- Puthothu B**, Forster J, Heinze J, Heinzmann A and Krueger M (2007). Surfactant protein b polymorphisms are associated with severe respiratory syncytial virus infection, but not with asthma. *BMC Pulm Med* 7, 6.
- Quinlan GJ**, Lamb NJ, Evans TW and Gutteridge JM (1996). Plasma fatty acid changes and increased lipid peroxidation in patients with adult respiratory distress syndrome. *Crit Care Med* 24, 241- 246.
- Quinn MT**, Parthasarathy S and Steinberg D (1988). Lysophosphatidylcholine: a chemotactic factor for human monocytes and its potential role in atherogenesis. *Proc Natl Acad Sci USA* 85, 2805-2809.
- Rabinovici R**, Bugelski PJ, Esser KM, Hillegass LM, Vernick J and Feuerstein G (1993). ARDS-like lung injury produced by endotoxin in platelet-activating factor-primed rats. *J Appl Physiol* 74, 1791-1802.
- Rabinovici R**, Zhang D, Su Y, Luo X, Zhao Q and Yang JH (2002). MOB-1 and TNF-alpha interact to induce microvascular lung injury. *Shock* 18, 261-264.

- Rawlins EL** and Hogan BL (2008). Ciliated epithelial cell lifespan in the mouse trachea and lung. *Am J Physiol Lung Cell Mol Physiol* 295(1), L231–L234.
- Rinaldo JE** and Rogers RM (1982). Adult respiratory-distress syndrome: changing concepts of lung injury and repair. *N Engl J Med* 306, 900–909.
- Roberfroid M** and Calderon PB (1995). Biologically relevant *Pharmacological Research, Vol. 40, No. 5, 1999* 401 radicals. In: *Free radicals and oxidation phenomena in biological systems*. Roberfroid M, Calderon PB, eds. New York: Marcel Dekker Inc. pp. 33-90.
- Robinson PC**, Watters LC, King TE and Mason RJ (1988). Idiopathic pulmonary fibrosis. Abnormalities in bronchoalveolar lavage fluid phospholipids. *Am Rev Respir Dis* 137, 585–591.
- Rodriguez-Capote K**, Nag K, Schurch S and Possmayer F (2001). Surfactant protein interactions with neutral and acidic phospholipid films. *Am J Physiol Lung Cell Mol Physiol* 281, L231- 242.
- Ross M**, Krol S, Janshoff A and Galla HJ (2002). Kinetics of phospholipid insertion into monolayers containing the lung surfactant proteins SP-B or SP-C. *Eur Biophys J* 31, 52-61.
- Rothfield L** and Romeo D (1971). Role of lipids in the biosynthesis of the bacterial cell envelope. *Bacteriol Rev* 35, 14-38.
- Rotruck JT**, Pope AL, Ganther HE, et al. (1973). Selenium: biochemical role as a component of glutathione peroxidase. *Science* 179, 588–590.
- Roux J**, Kawakatsu H, Gartland B, Pespeni M, Sheppard D, Matthay M A, Canessa C M and Pittet JF (2005). Interleukin-1beta decreases expression of the epithelial sodium channel alpha-subunit in alveolar epithelial cells via a p38 MAPK-dependent signaling pathway. *J Biol Chem* 280, 18579–18589.
- Rubinfeld GD**, Caldwell E, Peabody E, Weaver J, Martin DP, Neff M, Stern EJ and Hudson LD (2005). Incidence and Outcomes of Acute Lung Injury. *N Engl J Med* 353, 1685-1693.
- Ryborg AK**, Deleuran B, Thertrup-Pedersen K and Kragballe K (1994). Lysophosphatidylcholine: a chemoattractant to human T lymphocytes. *Arch Dermatol Res* 286, 462–465.
- Sabarirajan J**, Vijayaraj P and Nachiappan V (2010). Induction of acute respiratory distress syndrome in rats by lipopolysaccharide and its effect on oxidative stress and antioxidant status in lung. *Indian J Biochem Biophys* 47(5), 278-84.
- Salem N Jr**, Kim HY and Yergey JA (1986). Docosahexaenoic acid membrane function and metabolism. In: Simopoulos A, Kaifer R, Martin R, editors: *Handbook of Essential Fatty Acid Biology; Biochemistry, Physiology and Behavioral Neurobiology*. Totowa, NJ, Humana, 397–426.
- Sanford GL** and Frosolono MF (1983). The role of acyl transferase in the biosynthesis of pulmonary microsomal phosphatidylglycerol. *Biochem Biophys Res Commun* 116, 23–29.
- Saran M** and Bors W (1989). Oxygen radicals acting as chemical messenger: a hypothesis. *Free Rad Res Commun* 7, 213-20.
- Sasaki Y**, Asaoka Y and Nishizuka Y (1993). Potentiation of diacylglycerol-induced activation of protein kinase C by lysophospholipids. Subspecies difference. *FEBS Lett* 320, 47–51.
- Schlame M**, Kelley RI, Feigenbaum A, Towbin JA, Heerdt PM, Schieble T, Wanders RJ, DiMauro S and Blanck TJ (2003). Phospholipid abnormalities in children with Barth syndrome. *J Am Coll Cardiol* 42, 1994-1999.
- Schlame M**, Rua D and Greenberg ML (2000). The biosynthesis and functional role of cardiolipin. *Prog Lipid Res* 39, 257-288.



- Schmid B**, Finne MJ, Harwood JL and Jackson SK (2003). Acylation of lysophosphatidylcholine plays a key role in the response of monocytes to lipopolysaccharide. *Eur J Biochem* 270, 2728–2788.
- Schmidt R**, Meier U, Yabut-Perez M, Walmrath D, Grimminger F, Seeger W and Günther A (2001). Alteration of fatty acid profiles in different pulmonary surfactant phospholipids in acute respiratory distress syndrome and severe pneumonia. *Am J Respir Crit Care Med* 163, 95-100.
- Schmitz G** and Muller G (1991). Structure and function of lamellar bodies, lipid-protein complexes involved in storage and secretion of cellular lipids. *J Lipid Res* 32, 1539–1570.
- Schnyder-Candrian S**, Quesniaux VF, Di Padova F, Maillet I, Noulin N, Couillin I, Moser R, Erard F, Vargaftig BB, Ryffel B and Schnyder B (2005). Dual effects of p38 MAPK on TNF-dependent bronchoconstriction and TNF-independent neutrophil recruitment in lipopolysaccharide-induced acute respiratory distress syndrome. *J Immunol* 175(1), 262–269.
- Seeds MC**, Bowton DL, Hite RD, et al. (2003). Human eosinophil group IID secretory phospholipase A2 causes surfactant dysfunction. *Chest* 123, 3765-3775.
- Sheppard L**, Levy D, Norris G, Larson TV and Koenig JQ (1999). Effects of ambient air pollution on nonelderly asthma hospital admission in Seattle, Washington, (1987-1994.) *Epidemiology* 10, 23-30.
- Shier WT**, Baldwin JH, Nilsen-Hamilton M, Hamilton RT and Thanassi NM(1976). Regulation of guanylate and adenylate cyclase activities by lysolecithin. *Proc Natl Acad Sci USA* 73, 1586-1590.
- Shimosato Y** and Mukai K (1997). Tumors of the mediastinum. In: J Rosai and LH Sobin, editors. *Atlas of tumor pathology*. Washington, DC: Armed Forces Institute of Pathology, 183–206.
- Shires SE**, Kelleher J and Trejdosiewicz LK (1989). Effects of linoleic acid and mitogenic stimulation on the fatty acid composition of human lymphocytes. *Biochim Biophys Acta* 1002(1), 74-78.
- Shokuhi S**, Bhatia M, Christmas S, Sutton R, Neoptolemos JP and Slavin J (2002). Levels of the chemokines growth-related oncogene alpha and epithelial neutrophil-activating protein 78 are raised in patients with severe acute pancreatitis. *Br J Surg* 89, 566–572.
- Siddiqui RA**, Shaikh SR, Sech LA, Yount HR, Stillwell W and Zaloga GP(2004). Omega 3-fatty acids: health benefits and cellular mechanisms of action. *Mini Rev Med Chem* 4, 859–871.
- Simons RK**, Maier RV and Chi EY (1991). Pulmonary effects of continuous endotoxin infusion in the rat.
- Sinha AK** (1972). Colorimetric assay of catalase. *Anal Biochem* 47, 389–394.
- Skinner HA** (1961). Origin of medical terms. 2nd ed. Baltimore, Md: Williams & Wilkins, pp 404.
- Smith AD**, Conroy DM and Belin J (1985). Membrane lipid modification and immune function. *Proc Nutr Soc* 44, 201-209.
- Steinberg KP**, Milberg JA, Martin TR, Maunder RJ, Cockrill BA and Hudson LD (1994). Evolution of bronchoalveolar cell populations in the adult respiratory distress syndrome. *Am J Respir Crit Care Med* 150, 113–122.
- Strieter RM**, Kunkel SL, Keane MP and Standiford TJ (1999). Chemokines in lung injury: Thomas A. Neff lecture. *Chest* 116, 103S–110S.
- Stubbs CD** and Smith AD (1984). The modification of mammalian membrane polyunsaturated fatty acid composition in relation to membrane fluidity and function. *Biochim Biophys Acta* 779, 89-137.

- Sugiura T** and Waku K (1984). Enhanced turnover of arachidonic acid-containing species of phosphatidylinositol and phosphatidic acid of concanavalin A-stimulated lymphocytes. *Biochim Biophys Acta* 796(2), 190-198.
- Suzuki YJ**, Forman HJ and Sevanian A (1997). Oxidants as stimulators of signal transduction. *Free Rad Biol Med*, 22: 269-85.
- Swirski FK**, Nahrendorf M, Etzrodt M, Wildgruber M, Cortez-Retamozo V, Panizzi P, Figueiredo JL, Kohler RH, Chudnovskiy A, Waterman P, Aikawa E, Mempel TR, Libby P, Weissleder R and Pittet MJ (2009). Identification of Splenic Reservoir Monocytes and Their Deployment to Inflammatory Sites. *Science*. 325, 612-616.
- Sylvester I**, Rankin JA, Yoshimura T, Tanaka S and Leonard EJ (1990). Secretion of neutrophil attractant/activation protein by lipopolysaccharide stimulated lung macrophages determined by both enzyme-linked immunosorbent assay and N-terminal sequence analysis. *Am Rev Respir Dis* 141, 683-688.
- Takamoto DY**, Lipp MM, von Nahmen A, Lee KY, Waring AJ and Zasadzinski JA (2001). Interaction of lung surfactant proteins with anionic phospholipids. *Biophys J* 81, 153-169.
- Takeda K**, Kaisho T and Akira S (2003). Toll-like receptors. *Annu Rev Immunol* 21, 335-376.
- Tamir A** and Isakov N (1994). Cyclic AMP inhibits phosphatidylinositol-coupled and - uncoupled mitogenic signals in T lymphocytes. Evidence that cAMP alters PKC-induced transcription regulation of members of the jun and fos family of genes. *J Immunol* 152(7), 3391-9.
- Tasaka S**, Hasegawa N and Ishizaka A (2002). Pharmacology of acute lung injury. *Pulm. Pharmacol. Ther.* 15, 83-95.
- Thorley AJ**, Ford PA, Giembycz MA, Goldstraw P, Young A and Tetley TD (2007). Differential regulation of cytokine release and leukocyte migration by lipopolysaccharide-stimulated primary human lung alveolar type II epithelial cells and macrophages. *J Immunol* 178, 463-473.
- Todd DA**, Marsh MJ, George A, Henderson NG, Barr H, Sebastian S, Clark GT, Koster G, Clark HW and Postle AD (2010). Surfactant phospholipids, surfactant proteins, and inflammatory markers during acute lung injury in children. *Pediatr Crit Care Med* 11(1), 82-91.
- Togbe D**, Schnyder-Candrian S, Schnyder B, Doz E, Noulain N, Janot L, Secher T, Gasse P, Lima C, Coelho FR, Vasseur V, Erard F, Ryffel B, Couillin I and Moser R (2007). Toll-like receptor and tumour necrosis factor dependent endotoxin-induced acute lung injury. *Int J Exp Pathol* 88 (6), 387-391.
- Tolle A**, Meier W, Rudiger M, Hofmann KP and Rustow B (2002). Effect of cholesterol and surfactant protein B on the viscosity of phospholipid mixtures. *Chem Phys Lipids* 114, 159-168.
- Tomashefski JF Jr** (1990). Pulmonary pathology of the adult respiratory distress syndrome. *Clin Chest Med* 11, 593-619.
- Tredano M**, Griese M, Brasch F, Schumacher S, de Blic J, Marque S, Houdayer C, Elion J, Couderc R and Bahuau M (2004). Mutation of *sftpc* in infantile pulmonary alveolar proteinosis with or without fibrosing lung disease. *Am J Med Genet A* 126A, 18-26.
- Tsujimoto H, et al.**, (2003). Diffusion of macrolide antibiotics through the outer membrane of *Moraxella catarrhalis*. *Journal of Infection and Chemotherapy* 74, 1045-1055.
- Turek JJ**, Li Y, Schoenlein IA, Allen KGD and Watkins BA (1998). Modulation of macrophage cytokine production by conjugated linoleic acids is influenced by the dietary n-6:n-3 fatty acid ratio. *J Nutr Biochem* 9, 258-266.

- Turner CR**, Esser KM and Wheeldon EB (1993). Therapeutic intervention in a rat model of ARDS: IV. Phosphodiesterase IV inhibition. *Circ Shock* 39, 237-245.
- Uchida K**, Shiraishi M, Naito Y, Torii Y, Nakamura Y and Osawa T (1999). Activation of stress signaling pathways by the end product of lipid peroxidation. 4-hydroxy-2-nonenal is a potential inducer of intracellular peroxide production. *J Biol Chem* 274, 2234-42.
- Udobi KF**, Childs E and Touijer K (2003). Acute respiratory distress syndrome. *Am Fam Physician* 67, 315-322.
- Ueda J**, Starr ME, Takahashi H, Du J, Chang LY, Crapo JD, Evers BM & Saito H (2008). Decreased pulmonary extracellular superoxide dismutase during systemic inflammation. *Free Radic Biol Med* 45, 897-904.
- Ueda T**, Ikegami M and Jobe A (1994). Surfactant subtypes: in vitro conversion, in vivo function and effects of serum proteins. *Am J Respir Crit Care Med* 149, 1254-1259.
- Valenca SS**, Silva BF, Lopes AA, Romana-Souza B, Marinho Cavalcante MC, Lima AB, Gonçalves Koatz VL and Porto LC (2008). Oxidative stress in mouse plasma and lungs induced by cigarette smoke and lipopolysaccharide. *Environ Res* 108 (2), 199-204.
- Van Blitterswijk WJ**, De Veer G, Krol JH and Emmelot P (1982). Comparative lipid analysis of purified plasma membranes and shed extracellular membrane vesicles from normal murine thymocytes and leukemic GRSL cells. *Biochim Biophys Acta* 688, 495-504.
- Van Blitterswijk WJ**, Van der Meer W and Hilkmann H (1987). Quantitative contributions of cholesterol and the individual classes of phospholipids and their degree of fatty acyl (un)saturation to membrane fluidity measured by fluorescence polarization. *Biochemistry* 26, 1747-1756.
- Van Den Bosch H** (1974). Phosphoglyceride metabolism. *Annu Rev Biochem* 43, 243-277.
- Van Dijk MCM**, Postom F, Hilkmann H, Jalink K, Van Blitterswijk WJ and Moolenaar WH (1998). Exogenous phospholipase D generates lysophosphatidic acid and activates Ras, Rho and Ca²⁺ signalling pathways. *Curr Biol* 8, 386-392.
- Van Golde LM**, Batenburg JJ and Robertson B (1988). The pulmonary surfactant system: biochemical aspects and functional significance. *Physiol Rev* 68, 374-455.
- Van Helden HP**, Kuijpers WC, Steenvoorden D, Go C, Bruijnzeel PL, van Eijk M and Haagsman HP (1997). Intratracheal aerosolization of endotoxin (LPS) in the rat: a comprehensive animal model to study adult (acute) respiratory distress syndrome. *Exp Lung Res* 23, 297-316.
- Van Meer G**, Voelker DR and Feigenson GW (2008). Membrane lipids: where they are and how they behave. *Nat Rev Mol Cell Biol* 9, 112-124.
- Vanderbilt JN**, Mager EM, Allen L, Sawa T, Wiener-Kronish J, Gonzalez R and Dobbs LG (2003). CXC chemokines and their receptors are expressed in type II cells and upregulated following lung injury. *Am J Respir Cell Mol Biol* 29, 661-668.
- Veldhuizen R**, Nag K, Orgeig S and Possmayer F (1998). The role of lipids in pulmonary surfactant. *Biochim Biophys Acta* 1408, 90-108.
- Vijayaraj P**, Sabarirajan J and Nachiappan V (2011). Enhanced phospholipase B activity and alteration of phospholipids and neutral lipids in *Saccharomyces cerevisiae* exposed to N-nitrosornicotine. *Antonie Van Leeuwenhoek* 99(3), 567-77.
- Von Wichert P** and Kohl FV (1977). Decreased dipalmitoyllecithin content found in lung specimens from patients with so-called shock-lung. *Intens Care Med* 3, 27-30.

- Vreken P**, Valianpour F, Nijtmans LG, Grivell LA, Plecko B, Wanders RJ and Barth PG (2000). Defective remodeling of cardiolipin and phosphatidylglycerol in Barth syndrome. *Biochem Biophys Res Commun* 279, 378-382.
- Wade KC**, Guttentag SH, Gonzales LW, Maschhoff KL, Gonzales J, Kolla V, Singhal S and Ballard PL (2006). Gene induction during differentiation of human pulmonary type II cells in vitro. *Am J Respir Cell Mol Biol* 34, 727-737.
- Waite KA**, Wallin R, Qualliotine-Mann D and McPhail LC (1997). Phosphatidic acid-mediated phosphorylation of the NADPH oxidase component p47-phox. Evidence that phosphatidic acid may activate a novel protein kinase. *J Biol Chem* 272, 15 569 – 15 578.
- Wang Y**, Kuan PJ, Xing C, et al. (2009). Genetic defects in surfactant protein A2 are associated with pulmonary fibrosis and lung cancer. *Am J Hum Genet* 84 (1), 52-9.
- Ware LB** and Matthay MA (2000). The acute respiratory distress syndrome. *N Engl J Med.* 342(18):1334-49.
- Weaver TE** (1998). Synthesis, processing and secretion of surfactant proteins B and C. *Biochim Biophys Acta* 1408, 173-9.
- Weiland JE**, Davis WB, Holter JF, Mohammed JR, Dorinsky PM and Gadek JE (1986). Lung neutrophils in the adult respiratory distress syndrome. Clinical and pathophysiologic significance. *Am Rev Respir Dis* 133, 218-225.
- Welsh CJ**, Yeh GC., and Phang, J.M. 1994. Increased phospholipase D activity in multidrug resistant breast cancer cells. *Biochem Biophys Res Commun* 202, 211-217.
- Wert SE**, Yoshida M, Levine AM, et al. (2000). Increased metalloproteinase activity, oxidant production and emphysema in surfactant protein D gene-inactivated mice. *Proc Natl Acad Sci USA* 97, 5972-7.
- Whitsett JA**, Wert SE and Weaver TE (2010). Alveolar surfactant homeostasis and the pathogenesis of pulmonary disease. *Annu Rev Med* 61, 105-119.
- Witherden IR**, Vanden Bon EJ, Goldstraw P, Ratcliffe C, Pastorino U and Tetley TD (2004). Primary human alveolar type II epithelial cell chemokine release: effects of cigarette smoke and neutrophil elastase. *Am J Respir Cell Mol Biol* 30, 500-509.
- Wright SD**, Ramos RA, Tobias PS, Ulevitch RJ and Mathison JC (1990). CD14, a receptor for complexes of lipopolysaccharide (LPS) and LPS binding protein. *Science* 249, 1431-1433.
- Wright SM**, Hockey PM, Enhorning G, Strong P, Reid KB, Holgate ST, Djukanovic R and Postle AD (2000). Altered airway surfactant phospholipid composition and reduced lung function in asthma. *J Appl Physiol* 89, 1283-1292.
- Wustneck R**, Perez-Gil J, Wüstneck N, Cruz A, Fainerman VB and Pison U (2005). Interfacial properties of pulmonary surfactant layers. *Adv. Colloid. Interface Sci.* 117, 33-58.
- Yang M** and Cook ME (2003). Dietary conjugated linoleic acid decreased cachexia, macrophage tumor necrosis factor- α production, and modifies splenocyte cytokines production. *Exp Biol Med* 228, 51-58.
- Yang S**, Milla C, Panoskaltis-Mortari A, Hawgood S, Blazar BR and Haddad IY (2002). Surfactant protein a decreases lung injury and mortality after murine marrow transplantation. *Am J Respir Cell Mol Biol* 27, 297-305.

- Yang Y**, Cao J and Shi Y (2004). Identification and characterization of a gene encoding human LPGAT1, an endoplasmic reticulum-associated lysophosphatidylglycerol acyltransferase. *J Biol Chem* 279(53), 55866-74.
- Yargicoglu P**, Sahin E, Gumuslu S and Agar A (2007). The effect of sulfur dioxide inhalation on active avoidance learning, antioxidant status and lipid peroxidation during aging. *Neurotoxicol Teratol* 29, 211-8.
- Yokote K**, Morisaki N, Zenibayashi M, Ueda v, Kanzaki v, Saito Y and Yoshida S (1993). The phospholipase-A2 reaction leads to increased monocyte adhesion of endothelial cells via the expression of adhesion molecules. *Eur J Biochem* 217, 723-729.
- Yokoyama A**, Hamazaki T, Ohshita A, Kohno N, Sakai K, Zhao GD, Katayama H and Hiwada K (2000). Effect of aerosolized docosahexaenoic acid in a mouse model of atopic asthma. *Int Arch Allergy Immunol* 123, 327-332.
- Yorio T** and Frazier LW (1990). Phospholipids and electrolyte transport. *Proc Soc Exp Biol Med* 195, 293-303.
- Yoshikawa T**, Takano H, Takahashi S, Ichikawa H and Kondo M (1994). Changes in tissue antioxidant enzyme activities and lipid peroxides in endotoxin-induced multiple organ failure. *Circ Shock* 42, 53-58.
- Young SL**, Fram EK, Spain CL and Larson EW (1991). Development of type II pneumocytes in rat lung. *Am J Physiol* 260, L113-L122.
- Zenri H**, Rodriquez-Capote K, McCaig L, Yao LJ, Brackenbury A, Possmayer F, Veldhuizen R and Lewis J (2004). Hyperoxia exposure impairs surfactant function and metabolism. *Crit Care Med* 32, 1155-1160.
- Zerouga M**, Stillwell W, Stone J, Powner A, Dumauual AC and Jenki LJ (1996). Phospholipid class as a determinant in docosahexaenoic acid's effect on tumor cell viability. *Anticancer Res* 16, 2863-2868.
- Zhang F**, Zhao G and Dong Z (2001). Phosphatidylcholine-specific phospholipase C and D in stimulation of RAW264.7 mouse macrophage-like cells by lipopolysaccharide. *Int Immunopharmacol* 1 (7), 1375.
- Zhao Y**, Usatyuk PV, Gorshkova IA, He D, Wang T, Moreno-Vinasco L, Geyh AS, Breysse PN, Samet JM, Spannhake EW, Garcia JGN and Natarajan V (2009). Regulation of COX-2 expression and IL-6 release by particulate matter in airway epithelial cells. *American Journal of Respiratory Cell and Molecular Biology* 40(1), 19-30.
- Zhao Y**, Usatyuk PV, Gorshkova IA, He D, Wang T, Moreno-Vinasco L, Geyh AS, Breysse PN, Samet JM, Spannhake EW, Garcia JGN and Natarajan V (2009). Regulation of COX-2 expression and IL-6 release by particulate matter in airway epithelial cells. *American Journal of Respiratory Cell and Molecular Biology* 40(1), 19-30.