CURRICULUM VITAE
JAMES LESLIE KIRKLAND

ADDRESSES

Office Address:	Mayo Clinic, Guggenheim 7-01A, 200 First Street, S.W., Rochester, MN 55905
Telephone:	(507) 293-3466

EDUCATION AND QUALIFICATIONS

1998, 2008	Recertification in Geriatric Medicine. (American Board of Internal Medicine)
1996	Fellow, American College of Physicians.
1990	Ph.D., Institute of Medical Science. (University of Toronto)
1988	Diploma in Geriatric Medicine. (American Board of Internal Medicine)
1987	Certificate of Special Competence in Endocrinology & Metabolism. (Royal College of Physicians of Canada)
1985	Diploma in Endocrinology and Metabolism. (American Board of Internal Medicine)
1983	Diploma. (National Board of Medical Examiners)
1982	Certificate of Special Competence in Geriatric Medicine. (Royal College of Physicians of Canada)
1982	M.Sc., Department of Geriatric Medicine. (University of Manchester)
1981	F.R.C.P.(C), Internal Medicine. (Royal College of Physicians of Canada)
1980	Diploma in Internal Medicine. (American Board of Internal Medicine).
1978-1980	Residency in Internal Medicine. (Toronto General Hospital)
1978	Licentiate of the Medical Council of Canada.

EDUCATION AND QUALIFICATIONS cont'd

1977-1978	Intern in Medicine. (Toronto General Hospital)
1977	M.D. with First Class Honours. (University of Toronto)

APPOINTMENTS HELD

2007-Present	Noaber Foundation Professor of Aging Research, Mayo Medical School
2007-Present	Director, Kogod Center on Aging, Mayo Clinic
2002-Present	Associate Editor, Obesity Research
1997-2007	Director, Adipocyte Core, Boston Obesity/Nutrition Research Center.
1996-2007	Associate Research Professor of Biochemistry. (Boston University School of Medicine)
1994-2007	Associate Professor of Medicine. (Boston University School of Medicine) Director of Basic Research, Geriatrics Section. (Boston University School of Medicine)
1994	Associate Professor, Faculty of Medicine (University of Toronto)
1992-1994	Associate Member, School of Graduate Studies, Institute of Medical Science (University of Toronto)
1992-1994	Chair, Research Committee, Division of Geriatrics. (University of Toronto)
1990-1994	Assistant Professor, Faculty of Medicine. (University of Toronto)
1989-1994	Medical Director, Central Service, University of Toronto Regional Geriatrics Program
1989-1994	Director of Geriatrics Services. (Toronto Hospital)
1988-1992	Director of Research, Interdepartmental Division of Geriatrics. (University of Toronto)
1985-1989	Director of Geriatrics Services. (Toronto General Hospital)
1985-1994	Chief, Geriatrics Service. (The Queen Elizabeth Hospital)

APPOINTMENTS HELD cont'd

1983-1990	Lecturer, Faculty of Medicine. (University of Toronto)
1982-1984	Guest Worker, National Institute on Aging. (National Institutes of Health)
1983-1984	Instructor, Department of Medicine. (Johns Hopkins University)
1980-1982	Research Associate. (University of Manchester)

AWARDS AND HONORS

2012	Honorary Professor. Chair, Healthy Ageing and the Pathobiology of Mammalian Ageing. University of Groningen, the Netherlands
2012	Excellence in Research Award. (Mayo Clinic)
1994	Outstanding Teacher Award. (Division of Geriatrics, University of Toronto)
1994	Outstanding Poster Award in Health Services Research Section. (American Geriatrics Society)
1990	Toronto General Hospital Department of Medicine Award for Postgraduate Teaching (runner-up).
1988	Dr. W. Anderson Award for excellence in teaching program development. (Toronto General Hospital)
1982	Fellowship. (Gerontology Research Council of Ontario)
1982	Toronto Fund Award for Postgraduate Research. (Universities of Manchester and Toronto)
1980	Ontario Government Fellowship.
1977	Issei Prize in Medicine and Surgery. (University of Toronto)
1977	Dr. Mitchell Kohan Scholarship for General Proficiency in Medicine. (University of Toronto)
1976	Walter F. Watkins Scholarship for General Proficiency in Medicine. (University of Toronto)

1974 Michael Levine Prize for General Proficiency in Medicine. (University of Toronto)

PUBLICATIONS

Peer Reviewed Publications

136. Fuhrmann-Stroissnigg, H., Ling, Y.Y., Zhao, J., McGowan, S., Zhu, Y., Dorronsoro, A., Gregg, S., Stripay, J., Corbo, L., Tang, P., Ring, N., Giacca, M., Li X., Tchkonia, T., Kirkland, J.L., Niedernhofer, L.J., Robbins, P.D. HSP90 inhibitors as senolytics for delaying onset of age-related diseases. Nat Commun. (in press)

135. Kirkland, J.L., Tchkonia, T., Zhu, Y., Niedernhofer, L.J., Robbins, P.D. The clinical potential of senolytic drugs. J. Am. Geriatr. Soc. (in press)

134. Justice, J.N., Gregory, H., Tchkonia, T., LeBrasseur, N.K., Kirkland, J.L., Kritchevsky, S.B., Nicklas, B.J. Cellular senescence biomarker $p16^{INK4a+}$ cell burden in thigh adipose is associated with poor physical function in older women. J Gerontol A Biol Sci Med Sci. 2017 Jun 27. doi: 10.1093/gerona/glx134. [Epub ahead of print]

133. Ogrodnik, M., Miwa, S., Tchkonia, T., Tiniakos, D., Wilson, C.L., Lahat, A., Day, C.P., Burt, A., Palmer, A., Anstee, Q.M., Grellscheid, S.N., Hoeijmakers, J.H.J., Barnhoorn, S., Mann, D.A., Bird, T.G., Vermeij, W.P., Kirkland, J.L., Passos, J.F., von Zglinicki, T., Jurk, D. Cellular senescence drives age-dependent hepatic steatosis. Nat Commun. 2017 Jun 13;8:15691. doi: 10.1038/ncomms15691

132. Kirkland, J.L., Tchkonia, T. Cellular senescence: A translational perspective. EBioMedicine. 2017 Apr 12. pii: S2352-3964(17)30154-8. doi: 10.1016/j.ebiom.2017.04.013. [Epub ahead of print].

131. Zhu, Y., Doornebal, E.J., Pirtskhalava, T., Giorgadze, N., Wentworth, M., Fuhrmann-Stroissnigg, H., Niedernhofer, L.J., Robbins, P.D., Tchkonia, T., Kirkland, J.L. New agents that target senescent cells: the flavone, fisetin, and the BCL-XL inhibitors, A1331852 and A1155463. Aging (Albany NY). 2017 Mar 8;9(3):955-963. doi: 10.18632/aging.101202.

130. Rocca, W.A., Gazzuola Rocca, L., Smith, C.Y., Grossardt, B.R., Faubion, S.S., Shuster, L.T., Kirkland, J.L., Stewart, E.A., Miller, V.M. Bilateral oophorectomy and accelerated aging: Cause or effect? J Gerontol A Biol Sci Med Sci. 2017 Feb 28. doi: 10.1093/gerona/glx026. [Epub ahead of print].

129. Schafer, M., White, T., Iijima, K., Haak, A., Ligresti, G., Atkinson, E., Oberg, A., Birch, J., Salmonowicz, H., Zhu, Y., Mazula, D., Brooks, R., Fuhrmann-Stroissnigg, H., Pirtskhalava, T., Prakash, Y.S., Tchkonia, T., Robbins, P., Aubry, M.C., Passos, J., Kirkland, J.L., Tschumperlin, D., Kita, H., LeBrasseur, N.K. Cellular senescence mediates fibrotic pulmonary disease. Nature Commun. 2017 Feb 23;8:14532. doi: 10.1038/ncomms14532.

128. Hadley, E., Kuchel, G. Newman, A., Allore, H., Bartley, J., Bergeman, C., Blinov, M., Colon-Emeric, C., Dabhar, F., Dugan, L., Dutta, C., Eldadah, B., Ferrucci, L., Kirkland, J.L., Kritchevsky, S., Lipsitz, L., Nadkarni, N., Reed, M., Schmader, K., Sierra, F., Studenski, S., Varadhan, R., Walston, J., Whitson, H., Yung, R. Report: NIA Workshop on measures of physiologic resiliencies in human aging. J Gerontol A Biol Sci Med Sci. (In Press).

127. Stout, M.B., Justice J.N., Nicklas, B.J., Kirkland, J.L. Physiological aging: Links among adipose tissue dysfunction, diabetes, and frailty. Physiology (Bethesda) 32:9-19, 2017.

126. Singh, M., Jensen, M.D., Lerman, A., Kushwaha, S., Rihal, C.S., Gersh, B.J., Behfar, A., Tchkonia, T., Thomas, R.J., Lennon, R.J., Keenan, L.R., Moore, A.G., Kirkland, J.L. Effect of low-dose rapamycin on senescence markers and physical functioning in older adults with coronary artery disease: Results of a pilot study. J. Frailty Aging. 5:204-207, 2016.

125. Niedernhofer, L.J., Kirkland, J.L., Ladiges, W. Molecular pathology endpoints useful for aging studies. Ageing Res Rev. 2016 Oct 6. pii: S1568-1637(16)30057-5. doi: 10.1016/j.arr.2016.09.012.

124. Rocca, W.A., Gazzuola-Rocca, L., Smith, C.Y., Grossardt, B.R., Faubion, S.S., Shuster, L.T., Kirkland, J.L., Stewart, E.A, Miller, V.M. Accelerated accumulation of multimorbidity after bilateral oophorectomy: A population-based cohort study. Mayo Clin Proc. 2016 Nov;91(11):1577-1589. doi: 10.1016/j.mayocp.2016.08.002. Epub 2016 Sep 29.

123. Justice, J., Miller, J.D., Newman, J.C. Hashmi, S.K., Halter, J. Austad, S.N., Barzilai, N., Kirkland, J.L. Frameworks for proof-of-concept clinical trials of interventions that target fundamental aging processes. J Gerontol A Biol Sci Med Sci. August 16, 2016 doi:10.1093/gerona/glw126. [Epub ahead of print].

122. Kirkland, J.L., Stout, M.B., Sierra, F. Resilience in aging mice. J Gerontol A Biol Sci Med Sci. August 16, 2016 doi:10.1093/gerona/glw086. [Epub ahead of print].

121. Burd, C.E., Gill, M.S., Niedernhofer, L.J., Robbins, P.D., Austad, S.N., Barzilai, N., Kirkland, J.L. Barriers to the preclinical development of therapeutics that target aging mechanisms. J Gerontol A Biol Sci Med Sci. August 16, 2016 doi:10.1093/gerona/glw112. [Epub ahead of print].

120. Huffman, D.M., Justice, J.N., Stout, M.B., Kirkland, J.L., Barzilai, N., Austad, S.N. Evaluating health span in preclinical models of aging and disease: Guidelines, challenges, and opportunities for geroscience. J Gerontol A Biol Sci Med Sci. August 16, 2016 doi:10.1093/gerona/glw106. [Epub ahead of print].

119. Newman, J.C., Milman, S., Hashmi, S.K., Austad, S.N., Kirkland, J.L., Halter, J.B., Barzilai, N. Strategies and challenges in clinical trials targeting human aging. J Gerontol A Biol Sci Med Sci. 2016 Aug 16. pii: glw149. [Epub ahead of print].

118. Xu, M., Bradley, E.W., Weivoda, M.M., Hwang, S.M., Pirtskhalava, T., Decklever, T., Curran, G.L., Ogrodnik, M., Jurk, D., Johnson, K.O., Lowe, V., Tchkonia, T., Westendorf, J.J., Kirkland, J.L. Transplanted senescent cells induce an osteoarthritis-like condition in mice. J. Gerontol. Series A. August 2016 DOI: 10.1093/gerona/glw154.

117. Carpio, L.R., Bradley, E.W., McGee-Lawrence, M.E., Weivoda, M.M., Poston, D.D., Dudakovic, A., Xu, M., Tchkonia, T., Kirkland, J.L., van Wijnen, A.J., Oursler, M.J., Westendorf, J.J. Histone deacetylase 3 supports endochondral bone formation by controlling cytokine signaling and matrix remodeling. Sci Signal. 2016 Aug 9;9(440):ra79. doi: 10.1126/scisignal.aaf3273.

116. Farr, J.N., Fraser, D.G., Wang, H., Jaehn, K., Ogrodnik, M.B., Weivoda, M.M., Drake, M.T., Tchkonia, T., LeBrasseur, N.K., Kirkland, J.L., Bonewald, L.F., Pignolo, R.J., Monroe, D.G., Khosla, S. Identification of senescent cells in the bone microenvironment. J. Bone Mineral Res. 2016. DOI 10.1002/jbmr.2892.

115. Schafer, M.J, White, T.A., Evans. G, Tonne, J.M., Verzosa, G.C., Stout, M.B., Mazula, D.L., Palmer, A.K., Baker, D.J., Jensen, M.D., Torbenson, M.S., Miller, J.D., Ikeda, Y., Tchkonia, T., van Deursen, J.M., Kirkland, J.L., LeBrasseur, N.K. Exercise prevents diet-induced cellular senescence in adipose tissue. Diabetes. March 16, 2016, doi: 10.2337/db15-0291 [Epub ahead of print]

114. Kirkland, J.L. Translating the science of aging into therapeutic interventions. Cold Spring Harb Perspect Med. 2016 Mar 1;6(3):a025908. doi: 10.1101/cshperspect.a025908.

113. Palmer, A.K., Kirkland, J.L. Aging and adipose tissue: Potential interventions for diabetes and regenerative medicine. Exp. Gerontol. 2016 Feb 26. pii: S0531-5565(16)30054-7. doi: 10.1016/j.exger.2016.02.013. [Epub ahead of print]

112. Roos, C.M., Zhang, B., Palmer, A.K., Ogrodnik, M.B., Pirtskhalava, T., Thalji, N.M., Hagler, M., Jurk, D., Smith, L.A., Casaclang-Verzosa, G., Zhu, Y., Schafer, M.J., Tchkonia, T., Kirkland, J.L., Miller, J.D. Chronic senolytic treatment alleviates established vasomotor dysfunction in aged or atherosclerotic mice. Aging Cell. 2016 Feb 10. doi: 10.1111/acel.12458. [Epub ahead of print] *Co-corresponding author*.

111. Stout, M.B., Steyn, F.J., Jurczak, M.J., Camporez, J.G., Zhu, Y., Hawse, J.R., Jurk, D., Palmer, A.K., Xu, M., Pirtskhalava, T., Evans, G.L., de Souza Santos, R., Frank, A.P., White, T.A., Monroe, D.G., Singh, R.J., Casaclang-Verzosa, G., Miller, J.D., Clegg, D.J, LeBrasseur, N.K., von Zglinicki, T., Shulman, G.I., Tchkonia, T., Kirkland, J.L. 17α-Estradiol alleviates age-related metabolic and inflammatory dysfunction in male mice without inducing feminization. J Gerontol A Biol Sci Med Sci. 2016 Jan 24. pii: glv309. [Epub ahead of print]

110. Zhu, Y., Tchkonia, T., Fuhrmann-Stroissnigg, H., Dai H.M., Ling, Y.Y., Stout, M.B., Pirtskhalava, T., Giorgadze, N., Johnson, K.O., Giles, C.B., Wren, J.D., Niedernhofer, L.J., Robbins, P.D., Kirkland, J.L. Identification of a novel senolytic agent, navitoclax, targeting the Bcl-2 family of anti-apoptotic factors. Aging Cell. 2015 Dec 29. doi: 10.1111/acel.12445. [Epub ahead of print]

109. Xu, M., Palmer, A.K., Ding, H., Weivoda, M.M., Pirtskhalava, T., White, T.A., Sepe, A., Johnson, K.O., Stout, M.B., Giorgadze, N., Jensen, M.D., LeBrasseur, N.K., Tchkonia, T., Kirkland, J.L. Targeting senescent cells enhances adipogenesis and metabolic function in old age. Elife. 2015 Dec 19;4. pii: e12997. doi: 10.7554/eLife.12997. [Epub ahead of print]

108. Xu, M., Tchkonia, T., Ding, H., Ogrodnik, M., Lubbers, E.R., Pirtskhalava, T., White, T.A., Johnson, K.O., Stout, M.B., Mezera, V., Giorgadze, N., Jensen, M.D., Nathan K. LeBrasseur, James L. Kirkland. JAK inhibition alleviates the cellular senescence-associated secretory phenotype and frailty in old age. Proc. Natl. Acad. Sci. (USA); published ahead of print November 2, 2015, doi:10.1073/pnas.1515386112

107. LeBrasseur, N.K., Tchkonia, T., Kirkland J.L. Cellular senescence and the biology of aging, disease, and frailty. Nestle Nutr. Inst. Workshop Ser. 2015 Oct 20;83:11-18. [Epub ahead of print] PMID: 26485647

106. Comisford, R., Lubbers, E.R., Householder, L., Suer, O., Tchkonia, T., Kirkland, J.L., List, E.O., Kopchick, J.J., Berryman, D.E. Growth hormone receptor antagonist (GHA) transgenic mice have increased subcutaneous adipose tissue mass, altered glucose homeostasis, and no change in white adipose tissue cellular senescence. Gerontology. 2016;62(2):163-72. doi: 10.1159/000439050. Epub 2015 Sep 16

105. List, E.O., Berryman, D.E., Ikeno, Y., Hubbard, G.B., Funk, K., Comisford, R., Young, J.A., Stout, M.B., Tchkonia, T., Masternak, M.M., Bartke, A., Kirkland, J.L, Miller, R.A., Kopchick, J.J. Removal of growth hormone receptor (GHR) in muscle of male mice replicates some of the health benefits seen in global GHR-/- mice. Aging 7:500-512, 2015.

104. Sagar, G., Javeed, N., Dutta, S.K., Smyrk, T.C., Lau, J.S., Giorgadze, N., Tchkonia, T., Kirkland, JL., Chari, S.T., Mukhopadhyay, D. Pathogenesis of pancreatic cancer exosome-induced lipolysis in adipose tissue. Gut. 2015 Apr 28. pii: gutjnl-2014-308350. doi: 10.1136/gutjnl-2014-308350. [Epub ahead of print]

103. Zhu, Y., Tchkonia, T., Pirtskhalava, T., Gower, A., Ding, H., Giorgadze, N., Palmer, A.K., Ikeno, Y., Borden, G., Lenburg, M., O'Hara, S.P., LaRusso, N.F., Miller, J.D., Roos, C.M., Verzosa, G.C., LeBrasseur, N.K., Wren, J.D., Farr, J.N., Khosla, S., Stout, M.B., McGowan, S.J., Fuhrmann-Stroissnigg, H., Gurkar, A.U., Zhao, J., Colangelo, D., Dorronsoro, A., Ling, Y.Y., Barghouthy, A.S., Navarro, D.C., Sano, T., Robbins, P.D., Niedernhofer, L.J., Kirkland, J.L. The Achilles' heel of senescent cells: From transcriptome to senolytic drugs. Aging Cell 14:644-658, 2015. PMID: 25754370.

102. Palmer, A.K., Tchkonia, T., LeBrasseur, N.K., Chini, E.N., Xu, M., Kirkland, J.L. Cellular senescence in type II diabetes: A therapeutic opportunity. Diabetes 64:2289-98, 2015.

101. Zhu, Y., Tchkonia, T., Stout, M.B., Giorgadze, N., Wang, L., Li, P.W., Heppelmann, C.J., Bouloumié, A., Jensen, M.D., Bergen III, H.R., Kirkland, J.L. Inflammation and the depot-specific secretome of human preadipocytes. Obesity 23: 989-999, 2015.

100. Idrissova, L., Malhi, H., Werneburg, N.W., LeBrasseur, N.K., Bronk, S.F., Fingas, C., Tchkonia, T., Pirtskhalava, T., Stout, M.B., Hirsova, P., Kakisaka, K., Finnberg, N., El-Deiry, W.S., Kirkland, J.L., Gores, G.J. TRAIL receptor deletion in mice suppresses the inflammation of nutrient excess. Hepatology 2014 Nov 28. pii: S0168-8278(14)00882-4. doi: 10.1016/j.jhep.2014.11.033. [Epub ahead of print]. PMID:25445398.

99. Ness, K.K., Armstrong, G.T., Kundu, M., Wilson, C.L., Tchkonia, T., Kirkland, J.L. Frailty in childhood cancer survivors. Cancer 121:1540-1547, 2015. PMID:25529481.

98. Santosa, S., Swain, J., Tchkonia, T., Kirkland, J.L., Jensen, M.D. Inflammatory characteristics of adipose tissue collected by surgical excision vs needle aspiration. Int J Obes (Lond). 2014 Oct 16. doi: 10.1038/ijo.2014.185. [Epub ahead of print]. PMID:25319743.

97. Kirkland, J.L., Tchkonia, T. Clinical strategies and animal models for developing senolytic agents. Exp. Gerontol. 68:19-25, 2015. PMID:25446976.

96. Escande, C., Nin, V., Pirtskhalava, T., Chini, C.C.S., Tchkonia, T., Kirkland, J.L., Chini, E.N. Deleted in Breast Cancer 1 limits adipose tissue fat accumulation and plays a key role in the development of metabolic syndrome phenotype. Diabetes 64:12-22, 2015.

95. Childs, B., Baker, J., Kirkland, J.L., Campisi, J., van Deursen, J.M. Senescence versus apoptosis: dueling or complementary cell fates? EMBO J. 15:1139-1153, 2014.

94. Meuter, A., Winterhoff, B.J., Rogmann, L., Tchkonia, T., Kirkland, J.L., Morbeck, D.E. Markers of cellular senescence are elevated in murine blastocysts cultured in vitro: molecular consequences of culture in atmospheric oxygen. J. Assist. Repro. Genet. 31:1259-1267, 2014.

93. Stout, M.B., Tchkonia, T., Pirtskhalava, T., Palmer, A.K., List, E.O., Berryman, D.E., Lubbers, E.R., Escande, C., Spong, A., Masternak, M.M., Oberg, A.L., LeBrasseur, N.K., Miller, R.A., Kopchick, J.J., Bartke, A., Kirkland, J.L. Growth hormone action predicts age-related white adipose tissue dysfunction and senescent cell burden in mice. Aging 6:575-586, 2014.

92. Tran, D., Bergholz, J., Zhang, H., He, H., Wang, Y., Zhang, Y., Li, Q., Kirkland, J.L., Xiao, Z.X. Insulin-like growth factor-1 regulates the SIRT1-p53 pathway in cellular senescence. Aging Cell 13:669-678, 2014.

91. Wong, S., Kirkland, J.L., Schwanz, H.A., Simmons, A.L., Hamilton, J.A., Corkey, B.E., Guo, W. Effects of thiol antioxidant beta-mercaptoethanol on diet-induced obese mice. Life Sci. 107(1-2):32-41, 2014.

90. Escande, C., Nin, V., Pirtskhalava, T., Chini, C.C., Barbosa, M.T., Tchkonia. T., Kirkland, J.L., Chini, E.N. Deleted in Breast Cancer 1 regulates cellular senescence during obesity. Aging Cell 13:951-953, 2014.

89. Zhu, Y., Armstrong, J.L., Tchkonia, T., Kirkland, J.L. Cellular senescence and the senescent secretory phenotype in age-related chronic diseases. Curr. Opin. Clin. Nutr. Metab. Care 17:324-328, 2014.

88. Poland, G.A., Ovsyannikova, I.G., Kennedy, R.B., Lambert, N.D., Kirkland, J.L. A systems biology approach to the effect of aging, immunosenescence and vaccine response. Curr. Opin. Immunol. 29C:62-68, 2014.

87. List, E.O., Berryman, D.E., Funk, K., Jara, A., Kelder, B., Wang, F., Stout, M.B., Zhi, X., Sun, L., White, T.A., Lebrasseur, N.K., Pirtskhalava, T., Tchkonia, T., Jensen, E.A., Zhang, W., Masternak, M.M., Kirkland, J.L., Miller, R.A., Bartke, A., Kopchick, J.J. Liver-specific GH receptor gene disrupted (LiGHRKO) mice have decreased endocrine IGF-1, increased local IGF-1 as well as altered body size, body composition and adipokine profiles. Endocrinology 155:1793-1805, 2014.

86. Conover, C.A., Harstad, S.L., Tchkonia, T., Kirkland, J.L. Preferential impact of pregnancy associated plasma protein-A deficiency on visceral fat in mice on high fat diet. Am. J. Physiol. 305:E1145-1153, 2013.

85. Tchkonia, T., Thomou, T., Zhu, Y., Karagiannides, I., Pothoulakis, C., Jensen, M.D., Kirkland, J.L. Mechanisms and metabolic implications of regional differences among fat depots. Cell Metab. 17:1-13, 2013.

84. Guo, W., Wong, S., Li, M., Liang, W., Liesa, M., Serra, C., Jasuja, R., Bartke, A., Kirkland, J.L., Shirihai, O., Bhasin, S. Testosterone plus low-intensity physical training in late life improves functional performance, skeletal muscle mitochondrial biogenesis, and mitochondrial quality control in male mice. PLoS ONE 2012;7(12): e51180. doi:10.1371/journal.pone.0051180

83. Neacsu, O., Cleveland, K., Xu, H., Tchkonia, T., Kirkland, J.L., and Boney, C.M. IGF-I attenuates FFA-induced activation of JNK1 phosphorylation and TNFα expression in human subcutaneous preadipocytes. Obesity 21:1843-1849, 2013.

82. Kirkland, J.L. Translating advances from the basic biology of aging into clinical application. Exp. Gerontol. 48:1-5, 2013.

81. Tchkonia, T., Zhu, Y., van Deursen, J., Campisi, J., Kirkland, J.L. Cellular senescence and the senescent secretory phenotype: therapeutic opportunities. J. Clin. Invest. 123:966-972, 2013.

80. Mori, M.A., Raghavan, P., Thomou, T., Boucher, J., Robida-Stubbs, S., Macotela, Y., Russell, S.J., Kirkland, J.L., Blackwell, T.K., Kahn, C.R. Role of microRNA processing in adipose tissue in stress defense and longevity. Cell Metab. 16:336-347, 2012.

79. Guo, W., Li, Y., Liang, W., Wong, S., Apovian, C., Kirkland, J.L., Corkey, B.E. Beta-mecaptoethanol suppresses inflammation and induces adipogenic differentiation in 3T3-F442A murine preadipocytes. PLoS ONE 2012;7(7):e40958. doi: 10.1371/journal.pone.0040958. Epub 2012 Jul 23. PMID: 22911724 [PubMed - in process].

78. Strong, R, Miller, R.A., Astle, C.M., Baur, J.A., de Cabo, R., Fernandez, E., Guo, W., Javors, M., Kirkland, J.L., Nelson, J.F., Sinclair, D.A., Teter, B., Williams, D., Zaveri, N., Nadon, N.L., Harrison, D.E. Evaluation of resveratrol, green tea extract, curcumin, oxaloacetic acid, and medium chain triglyceride oil on lifespan of genetically heterogeneous mice. J. Gerontol. Biol. Sci. 68:6-16, 2013.

77. Baker, D.J., Wijshake, T., Tchkonia, T., LeBrasseur, N.K., Childs, B.G., van de Sluis, B., Kirkland, J.L., van Deursen, J.M. Clearance of $p16^{Ink4a}$-positive senescent cells delays aging-associated disorders. Nature 479:232-236, 2011.

76. Karagiannides, I., Bakirtzi, K., Kokkotou, E., Gross, K., Thomou, T., Giorgadze, N., Stavrakis, D., Kirkland, J.L., Pothoulakis, C. Role of Substance P in the regulation of glucose metabolism via insulin signaling – associated pathways. Endocrinology 152:4571-4580, 2011.

75. Karagiannides, I., Stavrakis, D., Bakirtzi, K., Kokkotou, E., Pirtskhalava, T., Nayeb-Hashemi, H., Bowe, C., Bugni, J.M., Nuño, M., Lu, B., Gerard, N.P., Leeman, S.E., Kirkland, J.L., Pothoulakis, C. Substance P (SP)-neurokinin-1 receptor (NK-1R) alters adipose tissue responses to high fat diet and insulin action. Endocrinology 152:2197-2205, 2011.

74. Reichert, B., Yasmeen, R., Jeyakumar, S., Yang, F., Thomou, T., Alder, H., Duester, G., Maiseyeu, A., Mihai, G., Harrison, E.H., Rajagopalan, S., Kirkland, J.L., Ouliana Ziouzenkova, O. Concerted action of aldehyde dehydrogenases influences depot-specific fat formation. Mol. Endocrinol. 25:799-809, 2011.

73. Schulz, J., Huang, T.L., Tran, T.T., Zhang, H., Townsend, C.L., Shadrach, J.L., Cerletti, M., McDougall, L.E., Giorgadze, N., Tchkonia, T., Schrier, D., Falb, D., Kirkland, J.L., Wagers, A.J., Tseng, Y.H. Identification of inducible brown adipocyte progenitors residing in skeletal muscle and white fat. Proc. Natl. Acad. Sci. (USA) 108: 143-148, 2011.

72. Sepe, A., Tchkonia, T., Thomou, T., Zamboni, M., Kirkland, J.L. Aging and regional differences in fat cell progenitors. Exp. Gerontol. 57: 66-75, 2011.

71. Tchoukalova, Y.D., Votruba, S.B., Tchkonia, T., Giorgadze, N., Kirkland, J.L., Jensen, M.D.. Regional differences in cellular mechanisms of adipose tissue gain with overfeeding. Proc. Natl. Acad. Sci. (USA) 107: 18226-18231, 2010.

70. Villaret, A., Galitzky, J., Decaunes, P., Estève, D., Marques, M.A., Sengenès, C., Chiotasso, P,

Tchkonia, T., Lafontan, M., Kirkland, J.L., Bouloumié, A. Adipose tissue endothelial cells from obese human subjects: Differences among depots in angiogenic, metabolic, and inflammatory gene expression and cellular senescence. Diabetes 59: 2755-2763, 2010.

69. Tchkonia, T., Morbeck, D.E., von Zglinicki, T., van Deursen, J., Lustgarten, J., Scrable, H., Khosla, S., Jensen, M.D., Kirkland, J.L. Fat tissue, aging, and cellular senescence. Aging Cell 9: 667-684, 2010.

68. Zaragosi, L.E., Wdziekonski,, B., Villageois, P., Keophiphath, M., Tchkonia, T., Boulier, V., Mohsen-Kanson, T., Ladoux, A., Elabd, C., Scheideler, M., Trajanoski, Z., Takashima, Y., Amri, E.Z., Lacasa, D., Sengenes, C., Ailhaud, G., Clément, K., Bouloumié, A., Kirkland, J.L., Dani, C. Activin A plays a critical role in proliferation and differentiation of human adipose progenitors. Diabetes 59: 2513-2521, 2010.

67. Cleveland-Donovan, K., Maile, L.A., Tsiaras, W.G., Tchkonia, T., Kirkland, J.L., Boney, C.M. IGF-I activation of the AKT pathway is impaired in visceral but not subcutaneous preadipocytes from obese subjects. Endocrinology 151 :3752-3763, 2010.

66. Tchoukalova, Y.D., Koutsari, C., Votruba, S.B., Tchkonia, T., Giorgadze, N., Thomou, T., Kirkland, J.L., Jensen, M.D. Sex- and depot-dependent differences in adipogenesis in normal weight humans. Obesity 18: 1875-1880, 2010.

65. Cartwright, M.J., Schlauch, K., Lenburg, M.E., Tchkonia, T., Pirtskhalava, T., Cartwright, A., Thomou, T., Kirkland, J.L. Aging, depot origin, and preadipocyte gene expression. J. Gerontol. 65:242-251, 2010.

64. Gross, K., Karagiannides, I., Thomou, T., Koon, H.W., Bowe, C., Kim, H., Giorgadze, N., Tchkonia, T., Pirtskhalava, T., Kirkland, J.L., Pothoulakis, C. Substance P promotes expansion of human mesenteric preadipocytes through proliferative and anti-apoptotic pathways. Am. J. Physiol. 296:G1012-1019, 2009.

63. Kirkland, J.L., Peterson, C. Healthspan, translation, and new outcomes for animal studies of aging. J. Gerontol. Biol. Sci. 64:209-212, 2009 (Peer-Reviewed Review).

62. Gupta, V., Bhasin, S., Guo, W., Singh, R., Miki, R., Kirkland, J.L., Jasuja, R. Effects of dihydrotestosterone on differentiation and proliferation of human mesenchymal stem cells and preadipocytes. Mol. Cell. Endocrinol. 296:32-40, 2008.

61. Guo, W., Flanagan, J., Jasuja, R., Kirkland, J.L., Jiang, L., Bhasin, S. The effects of myostatin on adipogenic differentiation of human bone marrow-derived mesenchymal stem cells are mediated through cross-communication between smad3 and WNT/beta-catenin signaling pathways. J. Biol. Chem. 283:9136-9145, 2008.

60. Vitseva, O., Tanriverdi, K., Tchkonia, T., Kirkland, J.L., Apovian, C.M., Freedman, J., Gokce, N. Inducible toll-like receptor and NF-kB regulatory pathway expression in human adipose tissue. Obesity 16:932-937, 2008.

59. Tchkonia, T., Pirtskhalava, T., Thomou, T., Cartwright, M., Wise, B., Karagiannides, I., Shpilman, A., Lash, T., Becherer, D., Kirkland, J.L. Increased TNFα and CCAAT/enhancer binding protein homologous protein (CHOP) with aging predispose preadipocytes to resist adipogenesis. Am. J. Physiol. 293:E1810-E1819, 2007.

58. Tchkonia, T., Lenburg, M., Thomou, T., Giorgadze, N., Frampton, G., Pirtskhalava, T., Cartwright, A., Cartwright, M., Flanagan, J., Karagiannides, I., Gerry, N., Forse, R.A., Tchoukalova, Y., Jensen, M.D., Pothoulakis, C., Kirkland, J.L. Identification of depot-specific human fat cell progenitors through distinct expression profiles and developmental gene patterns. Am. J. Physiol. 292:E298-E307, 2007.

57. Guo, W., Pirtskhalava, T., Tchkonia, T., Xie, W., Thomou, T., Han, J., Wang, T., Wong, S., Cartwright, A., Hegardt, F.G., Corkey, B.E., Kirkland, J.L. Aging results in paradoxical susceptibility of fat cell progenitors to lipotoxicity. Am. J. Physiol. 292:E1041-E1051, 2007.

56. Guo, W., Bigornia, S., Xie, W., McDonnell, M., Clemente, K., Leizerman, I., Pirtskhalava, T., Kirkland, J.L., Gokce, N., Behar, V., Corkey, B.E., Apovian, C.M. A new SEM method for determination of adipocyte size in human and mouse adipose tissue. Obesity 15:1657-1665, 2007.

55. Deng, B., Han, J.R., Sun, J., Chen, C.G., Corkey, B.E., Kirkland, J.L., Ma, J., Guo, W. Effects of dietary MCT on weight loss and insulin sensitivity in free living Chinese type II diabetic subjects. Metabolism 56:985-991, 2007.

54. Cartwright, M.J., Tchkonia, T., Kirkland, J.L. Aging in adipocytes: potential impact of inherent, depot-specific mechanisms. Exp. Gerontol. 42:463-471, 2007 (Peer-Reviewed Review).

53. Karagiannides, I., Kokkotou, E., Tansky, M., Tchkonia, T., Giorgadze, N., O'Brien, M., Leeman, S. E., Kirkland, J.L., Pothoulakis, C. Induction of colitis causes inflammatory responses in fat depots: evidence for substance P pathways in human mesenteric preadipocytes. Proc. Natl. Acad. Sci. 103:5207-5212, 2006.

52. Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Thomou, T., DePonte, M., Koo, A., Forse, R.A., Chinnappan, D., Carmen Martin-Ruiz, C., von Zglinicki, T., Kirkland, J.L. Fat depot-specific characteristics are retained in strains derived from single human preadipocytes. Diabetes 55:2571-2578, 2006.

51. Karagiannides, I., Thomou, T., Tchkonia, T., Pirtskhalava, T., Kypreos, K.E., Cartwright, A., Dalagiorgou, G., Lash, T.L., Farmer, S.R., Timchenko, N.A., Kirkland, J.L. Increased CUG triplet repeat binding protein-1 predisposes to impaired adipogenesis with aging. J. Biol. Chem. 281:23025-23033, 2006.

50. Xie W., Kirkland J.L., Corkey B.E., Hamilton J.A., Guo W. Oleate-induced formation of fat cells with impaired insulin sensitivity. Lipids 41:267-271, 2006.

49. Tchkonia, T., Corkey, B.E., Kirkland, J.L. Current views of the fat cell as an endocrine cell: lipotoxicity. Endocrine Updates 26:105-118, 2006 (Peer-Reviewed Review).

48. Tchkonia, T., Tchoukalova, Y., Giorgadze, N., Pirtskhalava, T., Karagiannides, I., Forse, R.A., Koo, A., Stevenson, M., Chinnappan, D., Cartwright, A., Jensen, M.D., Kirkland, J.L. Abundance of two human preadipocyte subtypes with distinct capacities for replication, adipogenesis, and apoptosis varies among fat depots. Am. J. Physiol. 288:E267-E277, 2005.

47. Kirkland, J.L., Tchkonia, T., Giorgadze, N., Pirtskhalava, T. Adipose tissue as an endocrine organ: Regional differences in adipocyte endocrine function. Prog. Obesity Res. 9:87-95, 2003 (Peer-Reviewed Review).

46. Han, J., Yoon, R., Corkey, B.E., Hamilton, J.A., Kirkland, J.L., Guo, W. Medium chain fatty acids decrease fat storage and down-regulate adipogenic gene expression. Obesity Res. 11:734-744, 2003.

45. Tchkonia, T., Giorgadze, N., Pirtshklava, T., Tchoukalova, Y., Karagiannides, I., Forse, R.A., DePonte, M., Stevenson, M., Guo, W., Han, J., Waloga, G., Lash, T.L., Jensen, M.D., Kirkland, J.L. Fat depot origin affects adipogenesis in primary cultured and cloned human preadipocytes. Am. J. Physiol. 282:R1286-R1296, 2002.

44. Han, J., Farmer, S.R., Kirkland, J.L., Corkey, B.E., Yoon, R., Pirtskhalava, T., Ito, Y., Guo, W. Octanoate attenuates adipogenesis in 3T3-L1 preadipocytes. J. Nutr. 132:904-910, 2002.

43. Naglie, G., Tansey, C., Kirkland, J.L., Ogilvie-Harris, D.J., Detsky, A.S., Etchells, E., Tomlinson, G., O'Rourke, K., Goldlist, B. Inpatient interdisciplinary geriatric care for elderly hip fracture patients: A randomized controlled trial. Canad. Med. Assoc. J. 167:25-32, 2002.

42. Kirkland, J.L., Tchkonia, T., Pirtskhalava, T., Han, J., Karagiannides, I. Adipogenesis and aging: Does aging make fat go MAD? Exp. Gerontol. 37:757-767, 2002 (Peer-Reviewed Review).

41. Kirkland, J.L. The biology of senescence: potential for prevention of disease. Geriatr. Clin. N. A. 18:383-405, 2002 (Peer-Reviewed Review).

40. Tchkonia, T., Karagiannides, I., Forse, R.A., Kirkland, J.L. Different fat depots are distinct mini-organs. Curr. Opin. Endocrinol. Diabetes 8:227-234, 2001 (Peer-Reviewed Review).

39. Millen, B.E., Silliman, R.A., Copenhafer, D., Ewart, C., Ritchie, C., Quatromoni, P., Kirkland, J.L., Chipkin, S., Fearon, N., Lund, M., Garcia, R., Barry, P.P.: Nutritional risk in an urban homebound older population: The nutrition and healthy aging project. J. Nutr. Health Aging 5:269-277, 2001.

38. Ewart, C.V., Fearon, N.A., Lund, M., Martin, B., Kirkland, J.L., Ritchie, C.S., Quatromoni, P., Silliman, R.A., Millen, B.E.: Subject recruitment, retention, and protocol feasibility in a prospective study of nutritional risk among urban, frail homebound elders. J. Nutr. Elderly 21:1-21, 2001.

37. Karagiannides, I., Tchkonia, T., Dobson, D.E., Steppan, C.M., Cummins, P., Chan, G., Salvatori, K., Hadzopoulou-Cladaras, M., Kirkland, J.L.: Altered expression of C/EBP family members results in decreased adipogenesis with aging. Am. J. Physiol. 280: R1772-R1780, 2001.

36. Caserta, F., Civelek, V.N., Thumelin, S., Prentki, M., Brown, N.F., McGarry, J.D., Tchkonia, T., Forse, R.A., Corkey, B.E., Hamilton, J.A., Kirkland, J.L.: Fat depot origin affects fatty acid handling in cultured rat and human preadipocytes. Am. J. Physiol. 280: E238-E247, 2001.

35. Guo, W., Choi, J.K., Kirkland, J.L., Corkey, B.E., Hamilton, J.A.: Storage of free fatty acids in preadipocytes: a comparison between octanoate and oleate. Biochem. J. 463-471, 2000.

34. Guo, W., Choi, J.K., Kirkland, J.L., Corkey, B.E., Hamilton, J.A.: Incorporation of [1-^{13}C] oleate into cellular triglycerides in differentiating 3T3L1 cells. Lipids 34:825-831, 1999.

33. Kirkland, J.L., Hollenberg, C.H.: Inhibitors of preadipocyte replication: Opportunities for the treatment of obesity. Prog Mol. Subcell. Biol. 20: 177-195, 1998.

32. Guo, W., Kirkland, J.L., Corkey, B., Hamilton, J.A.: A ^{13}C nuclear magnetic resonance study of free fatty acid incorporation in acylated lipids in differentiating preadipocytes. Lipids 33:449-454, 1998.

31. Kirkland, J.L., Dobson, D.E.: Preadipocyte function and aging: links between age-related changes in cell dynamics and altered fat tissue function. J. Amer. Geriatr. Soc. 45:959-967, 1997 (Peer-Reviewed Review).

30. Straus, S.E., Kirkland, J.L., Verwoerd, F., Hamilton, L., Gottfried, M., Naglie, G.: Discharges home following intensive inpatient geriatric rehabilitation. Canad. J. Rehabil. 11:81-87, 1997.

29. Brown, N.F., Hill, J.K., Esser, V., Kirkland, J.L., Corkey, B.E., Foster, D.W., McGarry, J.D.: Mouse white adipocytes and 3T3-L1 cells display an anomalous pattern of carnitine palmitoyltransferase (CPT) I isoform expression during differentiation. Biochem. J. 327:225-231, 1997.

28. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Effects of fat depot site on differentiation-dependent gene expression in rat preadipocytes. Int. J. Obesity 20(Suppl. 3): S102-S107, 1996.

27. McDermott, G., Ingram, A., Scholey, J., Kirkland, J.L., Whiteside, C.I.: Glomerular dysfunction in the aging Fischer 344 rat is associated with excessive growth and normal mesangial cell function. J. Gerontol. Biol. Sci. 51: M80-M85, 1996.

26. Teichert-Kuliszewska, K., Hamilton, B.S., Roncari, D.A.K., Kirkland, J.L., Gillon, W.S., Deitel, M., Hollenberg, C.H.: Increasing vimentin expression associated with differentiation of human and rat preadipocytes. Int. J. Obesity 20: S108-S113, 1996.

25. Brymer, C., Kohm, C.A., Naglie, G., Shekter-Wolfson, L., Zorzitto, M., O'Rourke, K., Kirkland, J.L.: Do geriatric programs decrease long term use of acute care beds? J. Am. Geriatr. Soc. 43:885-889, 1995.

24. Naglie, G., Goldlist, B., Kirkland, J., Gordon, M., Klapecki, K., Young, J., Clark, P.: Cluster deaths in long-term care institutions: An investigation of excess deaths in two Ontario nursing homes. Canad. J. Publ. Health 86:120-123, 1995.

23. Kirkland, J.L., Hollenberg, C.H., Kindler, S., Roncari, D.A.K.: Long chain fatty acids decrease lipoprotein lipase activity of cultured rat adipocyte precursors. Metabolism 43:1-5, 1994.

22. Kirkland, J.L., Hollenberg, C.H., Kindler, S., Gillon, W.S.: Effects of age and anatomic site on preadipocyte number in rat fat depots. J. Gerontol. 49:B31-B35, 1994.

21. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Ageing, differentiation, and gene expression in rat epididymal preadipocytes. Biochem. Cell Biol. 71:556-561, 1993.

20. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Effects of aging on ribosomal protein L7 messenger RNA levels in cultured rat preadipocytes. Exp. Gerontol. 28:557-563, 1993.

19. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Two preadipocyte subtypes cloned from human omental fat. Obesity Res. 2:87-91, 1993.

18. Kirkland, J.L.: The biochemistry of mammalian senescence. Clin. Biochem. 25:61-75, 1992 (Peer-Reviewed Review).

17. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S., Kindler, S.: Effect of hypophysectomy on rat

preadipocyte replication and differentiation. Endocrinology 131:2769-2773. 1992.

16. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Age, anatomic site, and the replication and differentiation of adipocyte precursors. Am. J. Physiol. 258:C206-C210, 1990.

15. Kirkland, J.L.: Evolution and ageing. Genome 31:398-405, 1989 (Peer-Reviewed Review).

14. Li, Z.H., Lu, Z., Kirkland, J.L., Gregerman, R.I.: A preadipocyte stimulating factor (PSF) in rat serum. Evidence for a discrete 63Kda protein that promotes celldifferentiation of rat preadipocytes in primary cultures. J. Cell. Physiol. 141:543-557, 1989.

13. Wang, H., Kirkland, J.L., Hollenberg, C.H.: Varying capacities for replication of rat adipocyte precursor clones and adipose tissue growth. J. Clin. Invest. 83:1741-1746, 1989.

12. Lu, Z., Pineyro, M.A., Kirkland, J.L., Li, Z.H., Gregerman, R.I.: Prostaglandin-sensitive adenylyl cyclase of cultured preadipocytes and mature adipocytes of the rat. Probable role of Gi in determination of stimulatory or inhibitory action. J. Cell. Physiol. 136:1-12, 1988.

11. Kirkland, J.L., Pineyro, M.A., Lu, Z., Gregerman, R.I.: Hormone sensitive adenylyl cyclase in preadipocytes cultured from adipose tissue: comparison with 3T3-L1 cells and adipocytes. J. Cell. Physiol. 133:449-460, 1987.

10. Kirkland, J.L., Dax, E.M.: Adipocyte hormone responsiveness and aging in the rat. J. Am. Geriat. Soc. 32:219-228, 1984 (Peer-Reviewed Review).

9. Schneyer, C.R., Pineyro, M.A., Kirkland, J.L., Gregerman, R.I.: Stimulation of human fat cell adenylate cyclase by GDP and guanosine- 5'-0-(2-thiodiphosphate) (GDP-β-S). J. Biol. Chem. 259:7038-7044, 1984.

8. Kirkland, J.L., Lye, M., Goddard, C., Vargas, E., Davies, I.: Plasma arginine vasopressin in dehydrated elderly patients. Clin. Endocrinol. 20:451-456, 1984.

7. Hickey, D.S., Kirkland, J.L., Lucas, S., Lye, M.: Analysis of averaged and point data by the fitting of least squares sine curves. Comp. Biol. Med. 14:217-223, 1984.

6. Kirkland, J.L., Lye, M., Levy, D.W., Banerjee, A.K.: Patterns of urine flow and electrolyte excretion in healthy elderly people. Br. Med. J. 287:1665-1667, 1983.

5. Kirkland, J.L., Pearson, D.J., Goddard, C., Davies, I.: Polyuria and inappropriate secretion of arginine vasopressin in hypothalamic sarcoidosis. J. Clin. Endocrinol. Metab. 56:269-272, 1983.

4. Kirkland, J.L., Vargas, E., Lye, M.: Indican excretion in the elderly. Postgrad. Med. J. 59:43-45, 1983.

3. Brocklehurst, J.C., Kirkland, J.L., Martin, J., Ashford, J.: Constipation in long-stay elderly patients: Its treatment and prevention by lactulose poloxalkol-dihydroxyanthroquinolone and phosphate enemas. Gerontology 29: 181-184, 1983.

2. Kirkland, J.L., Lye, M., Faragher, E.B., dos Santos, A.G.R.: A longitudinal study of the prognostic significance of ventricular ectopic beats in the elderly. Gerontology 29:199-201, 1983.

1. Van Loon, G.R., Mascardo, R., Shum, A., Kim, C., Datta, H., Green, S., Kirkland, J., Sole M.J., Kamble,

A.: Monoaminergic regulation of the neuroendocrine transducer which controls ACTH secretion. Neuropsychopharmacology, 2:939-947, 1978.

Book

Olshansky, S.J., Martin, G.M., Kirkland, J.L. Aging: The Longevity Dividend. Cold Spring Harbor Perspectives in Medicine. Cold Spring Harbor Laboratory Press. Cold Spring Harbor, NY, 2015.

Theses

Kirkland, J.L.: Ageing and Adipocyte Precursor Function. Ph.D. Thesis. University of Toronto, 1990.

Kirkland, J.L.: Renal circadian rhythms and ageing. M.Sc. Thesis. University of Manchester, 1982.

Chapters, Reviews (non-peer reviewed), Editorials, and Letters

22. Palmer, A.K., Kirkland, J.L. The biology of aging. Chapter 2. Reichels' Care of the Elderly. Busby-Whitehead, J., Arenson, C., Durso, S.C., Swagerty, D., Mosqueda, L., Fiatarone Singh, M., Reichel, W. editors. 7th Edition. Cambridge University Press. United Kingdom. Pp. 17-27.

21. Xu, M., Kirkland, J.L. Inflammation and aging. Chapter 8 in Handbook of Theories of Aging. Bengtson, V.L. and Settersten, R.A., editors. 3rd edition. Springer Publishing Company, New York. pp. 137-152, 2016.

20. Xu, M., Tchkonia, T., Kirkland, J.L. Perspective: Targeting the JAK/STAT pathway to fight age-related dysfunction. Pharmacol Res. 2016 May 27. pii: S1043-6618(16)30293-6. doi: 10.1016/j.phrs.2016.05.015. [Epub ahead of print].

19. Kirkland, J.L., Tchkonia, T. The way forward: translation. Advances in Geroscience. Sierra, F., Kohanski, R. editors. Springer, Heidelberg. pp. 593-622, 2015.

18. Stout, M.B., Tchkonia, T., Kirkland, J.L. Growth hormone in adipose dysfunction and senescence. Oncotarget 6:10667-10668, 2015.

17. Kirkland, J.L. Cellular Mechanisms of Aging. Chapter 9 in Brocklehurst's Textbook of Geriatric Medicine and Gerontology. Fillit, H., Rockwood, K., Young, J. editors. 8th Edition. Elsevier. Philadelphia. Pp. 47-52.

16. Stout, M.B., Tchkonia, T., Kirkland, J.L. The aging adipose organ: lipid redistribution, inflammation, and cellular senescence. Chapter 5 in Adipose Tissue and Adipokines in Health and Disease. Fantuzzi, G., Braunschweig, C., editors. Second Edition. Springer. New York. pp. 69-80, 2014.

15. Kirkland, J.L. Inflammation and cellular senescence: potential contribution to chronic diseases and disabilities with aging. Public Policy and Aging Report 23: 4: 12-15, 2014.

14. Lithgow, G.J., Lord, J.M, Kirkland, J.L. Translating longevity research into healthspan. Longevity and Healthspan 1:1, 2012.

13. Florido, R., Tchkonia, T., Kirkland, J.L. Aging and Adipose Tissue. Chapter 5 in Masoro, E.J., Austad, S.N., (editors). Handbook of the Biology of Aging, 7th Edition. Elsevier. Pages 119-140, 2011.

12. Kirkland, J.L. Perspectives on cellular senescence and short term dietary restriction in adults. Aging 2:542-544, 2010.

11. Thomou, T., Tchkonia, T., Kirkland, J.L. The Cellular and Molecular Basis of Functional Differences Among Fat Depots. Chapter 2 in Granneman, J.G., Leff, T. (editors). Adipose Tissue in Health and

Disease. Wiley-VCH. Pages 21-47, 2010 (Book Chapter).

10. Tchkonia, T., Kirkland, J.L. Adipokines, regional fat tissue development, and cardiovascular disease. Circulation Frontier 9: 26-37, 2005 (Invited Review).

9. Kirkland, J.L. Commentary: aging, differentiation-dependent gene expression, and fat cell function. J. Gerontol. 54A: B189-B190, 1999 (Editorial).

8. Berg, J.M., Karlinsky, H.J., Lowy, F.H., Kirkland, J.L., Meier, H.M.R.: Ethical and legal guidelines for Alzheimer's disease research: Progress, problems, and current recommendations. In: Ethical and Legal Issues in Alzheimer's Disease Research. Berg, J.M., Karlinsky, H.J., Lowy, F.H. (editors). Carswell Publishers. Toronto, 1991 (Book Chapter).

7. Krinik, J.J., Kirkland, J.L.: Issues in underwriting for the elderly. Proc. Home Off. Underwriters Assoc. 59:138-164, 1988 (Invited Review).

6. Kirkland, J.L.: Rehabilitating the elderly instead of warehousing them. Dimensions 64(7):17-19, 1987 (Invited Review).

5. Abouchacra, S., Kirkland, J.L.: Itching and neoplastic skin conditions in the elderly. Diagnosis 4(1):105-121, 1987 (Invited Review).

4. Kirkland, J.L.: Thyroid disorders in the elderly. Diagnosis 3 (1):23-29, 1986 (Invited Review).

3. Kirkland, J.L.: Falls in the elderly. Ontario Medicine 8, August 6, 1984 (Invited Review).

2. Kirkland, J.L.: A broader approach to geriatric assessment. Chapter 4 in Geriatric Assessment, the Canadian Experience. National Advisory Council on Aging. (H71-2/1-7-1989E). Ottawa, 1989. pp 65-84 (Book Chapter).

1. Kirkland, J.L., Robinson, J.M.: Bacteriuria and survival in old age. N. Engl. J. Med. 305:586, 1981 (Letter).

Abstracts

82. White, T., Evans, G., Verzosa, G., Pirtskhalava, T., Tchkonia, T., Jordan Miller, J.,James Kirkland, J., LeBrasseur, N. Aging, cellular senescence, and disease: the influence of diet and exercise. FASEBJ. 28; 880.7, 2014.

81. Idrissova, L., Malhi, H., Werneburg, N.W., LeBrasseur, N.K., Bronk, S.F., Fingas, C.D., Tchkonia, T., Pirtskhalava, T., Liedtke, C., Trautwein, C., Finnberg, N., El-Deiry, W.S., Kirkland, J.L., Gores, G.J. TRAIL receptor signaling promotes hepatocyte apoptosis and liver inflammation in a mouse model of steatohepatitis. Hepatology 60 Suppl. 1: 736A, 2014.

82. Xu, M., Stout, M., Pirtskhalava, T., Giorgadze, N., Palmer, A., White, T., Jensen, M.D., LeBrasseur, N., Tchkonia, T., Kirkland, J.L. The bystander and systematic adverse effects of senescent preadipocytes. Obesity Reviews 15 (Suppl. 2): 20, 2014.

81. Stout, M.B., Tchkonia, T., Pirtskhalava, T., Escande, C., Giorgadze, N., Palmer, A.K., List, E.O., Berryman, D., Kopchick, J.J., Miller, R.A, Bartke, A., Kirkland, J.L. Blunted growth hormone signal transduction mitigates lipid redistribution and WAT senescent cell burden. Obesity Reviews 15 (Suppl.

2): 20, 2014.

80. White, T.A., Zhu, Y., Giorgadze, N., Tchkonia, T., Kirkland, J.L., LeBrasseur, N.K. Aging, inflammation and skeletal muscle. FASEB J. Apr, 26; 2012.

79. Xu, M., Zhu, Y., Pirtskhalava, T., Giorgadze, N., Baker, D.J., Jensen, M.D., van Deursen, J., Tchkonia, T., Kirkland, J.L. Senescent cells compromise fat tissue function. J. Tissue Eng. Regen. Med. 6, 2012.

78. Kling R, Ravuri S, Lin YC, Bechtel J, Gough A, Philips B, Kirkland J, Marra K, Fernstrom J, Rubin P. Establishment of an in vitro assay for high-throughput screening of pro-adipogenic agents. J. Tissue Eng. Regen. Med. 6:355, 2012.

77. Kirkland, J.L., Zhu, Y., Tchkonia, T., Li, P.W., Bergen, H.R., Jensen, M.D. Cellular senescence and an inflammatory senescence-associated secretory phenotype in human preadipocytes. Obesity 19 (Suppl. 1): S65, 2011.

76. Kirkland, J.L. Aging, adipose tissue, and cellular senescence. Rejuvenation Res. 14(Suppl. 1): S26, 2011.

75. Zhu, Y., Tchkonia, T., Giorgadze, N., Liang, G., Li, P., Holtz-Heppelmann, C.J., Bergen, H.R., Jensen, M.D., Bouloumié, A., Kirkland, J.L. Inflammation and the fat depot-specific secretome of human fat cell progenitors. Obesity Rev. 12 (Suppl. 1): 30, 2011.

74. Kirkland, J. L. Fat and aging. Diabet. Obes. Metab. 12 (Suppl. 1): 7, 2010.

73. Kirkland, J.L., Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Bartke, A., Masternak, M., Miller, R., Kopchick, J., Berryman, D., List, E., Ikeno, Y., Adamo, M., Boney, C., Cleveland-Donovan, K. Age-related fat redistribution and cellular senescence are delayed in growth hormone/ IGF-1 deficient mice. Obesity 18 (Suppl. 2): S53, 2010.

72. Tchkonia, T., Pirtskhalava, T., Giorgadze, N., von Zglinicki, T., Kirkland, J.L. The inflammatory and anti-adipogenic effects of the senescent preadipocytes that accumulate due to aging and TNFα exposure are blocked by inhibiting JAK-2. Obesity Rev. 11 (Suppl. 11): 27, 2010.

71. Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Bartke, A., Masternak, M., Miller, R., Kopchick, J., Berryman, D., List, E., Ikeno, Y., Adamo, M., Boney, C., Kirkland, J.L. Age-related fat redistribution and cellular senescence are delayed in growth hormone/ IGF-1 deficient mice. Obesity 18 (Suppl. 2): S53, 2010.

70. Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Thomou, T., Villaret, A., Bouloumie, A., von Zglinicki, T., Kirkland, J.L. Cellular senescence and inflammation in obesity. Obesity 17 (Suppl. 2): S57, 2009.

69. Tchkonia, T., Lenburg, M., Giorgadze, N., Thomou, T., Gadua, M., Kirkland, J.L. Different thiazolidinediones elicit distinct responses in human preadipocytes. J. Diabetes 1 (Suppl. 1): A189, 2009.

68. Kane, A., Bergenhem, N., Kirkland, J.L., Pilch, P.F., Farmer, S., Hamilton, J.A., McCormack, J.G., Pan, D.A., Wong-Kai-In, P., Corkey, B.E. Inhibition of acyl CoA synthetase decreases fat storage in human adipocytes and body weight and fat mass in DIO mice. Diabetes 56 (Suppl.), 2009.

67. Thomou T., Ziouzenkova O., Tchkonia T., Giorgadze N., Kirkland JL. Retinoids regulate fat depot-specific developmental gene expression. Obesity 25 (Suppl.): A40, 2009.

66. Boney, C, Cleveland-Donovan, K., Tchkonia, T., Giorgadze, N., Gagua, M., Kirkland, J.L. IGF-1-mediated adipogenesis varies between human subcutaneous and omental fat depots. Prog. Ann. Endo Soc. M. 90:P3-165, 2008.

65. Kirkland, J.L., Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Gagua, M., Karagiannides, I., Cleveland-Donovan, K., Conover, C., Boney, C. Preadipocyte IGF-1 signaling, bioavailability, and responsiveness vary among fat depots. Int. J. Obesity 32 (Suppl. 1): S42, 2008.

64. Kirkland, J.L., Cartwright, M., Tchkonia, T., Lenburg, M., Schlauch, K., Pirtskhalava, T., Cartwright, A., Lopez, M. Mechanisms of age-related fat redistribution: aging, fat depot origin, and fat cell progenitor gene expression. Gerontologist 47 (Special Issue 1): 282, 2007.

63. Kirkland, J.L., Tchkonia, T., Cleveland-Donovan, K., Giorgadze, N., Gagua, M., Karagiannides, I., Pothoulakis, C., Conover, C., Boney, C. Regional variation in bioavailability and responsiveness to IGF-1 in human preadipocytes. Obesity 15 (Suppl.): A14, 2007.

62. Vitseva, O., Tanriverdi, K., Tchkonia, T., Kirkland, J.L., Apovian, C.M., Freedman, J., Gokce, N. Inducible toll-like receptor and NF-kB regulatory pathway expression in human adipose tissue. Obesity 15 (Suppl.): A28, 2007.

61. Tchkonia, T., Pirtskhalava, T., Thomou, T., Cartwright, M., Wise, B., Karagiannides, I., Shpilman, A., Beckerer, D., Kirkland, J.L. Increased TNFα and CCAAT/enhancer binding protein homologous protein (CHOP) with aging predispose preadipocytes to resist adipogenesis. Prog. Ann. Endo Soc. M. 89:500, 2007.

60. Gupta, V., Tchkonia, T., Guo, W., Lebrasseur, N., Flanagan, J.D., Singh, R., Koncarevic, A., Morris, C., Kirkland, J.L., Bhasin, S., Gupta, R. Androgens modulate adipogenic differentiation and function at multiple stages. Prog. Ann. Endo Soc. M. 89:163, 2007.

59. Kirkland, J.L., Tchkonia, T., Giorgadze, N., Gagua, M., Karagiannides, I., Cleveland-Donovan, K., Conover, C., Boney, C. Regional variation in bioavailability and responsiveness to IGF-1 in human preadipocytes. Obesity 15 (Suppl.): A14, 2007.

58. Kirkland, J.L., Cartwright, M., Tchkonia, T., Lenburg, M., Schlauch, K., Pirtskhalava, T., Cartwright, A., Lopez, M., Frampton, G. Aging, fat depot origin, and preadipocyte expression profiles: setting the stage for fat tissue dysfunction. Int. J. Obesity 31 (Suppl. 1): S18, 2007.

57. Thomou, T., Tchkonia, T., Giorgadze, N., Lash, T., Gagua, M., Karagiannides, I., Pothoulakis, C., Kirkland, J.L. Homeobox gene expression profiles are distinct in human preadipocytes isolated from different fat depots. Obesity 14 (Suppl.): A40, 2006.

56. Kirkland, J.L., Tchkonia, T., Lenburg, M., Thomou, T., Giorgadze, N., Sabban, A., Pirtskhalava, T., Cartwright, A., Cartwright, M., Gerry, N., Forse, R.A., Tchoukalova, Y., Jensen, M.D., Pothoulakis, C. Identification of depot-specific human fat cell progenitors through distinct expression patterns, developmental gene profiles, morphology, and function. Obesity Rev. 7 (Suppl. 2): 84, 2006.

55. Guo, W., Bigornia, S., Xie, K., McDonnell, M., Pirtskhalava, T., Kirkland, J.L., Corkey, B., Gokce, N., Behar, V., Apovian, C. A new method for determination of adipocyte size: correlations with weight

loss and fat depot origin. Obesity Res. 13 (Suppl.): A176, 2005.

54. Tchoukalova, Y., Tchkonia, T., Giorgadze, N., Ward, L., Kirkland, J.L., Jensen, M. Quantitative proteomic analysis of human preadipocyte clones from subcutaneous, omental, and mesenteric depots using isotope-coded affinity tags. Obesity Res. 13 (Suppl.): A168, 2005.

53. Kirkland, J.L., Tchkonia, T., Lenburg, M., Prabhu, V., Giorgadze, N., Pirtskhalava, T., Thomou, T., Forse, A., Pothoulakis, C., Becker, K. Are Different Fat Depots Separate Mini-Organs? Obesity Res. 13 (Suppl.): A1, 2005.

52. Cartwright, M.J., Tchkonia, T., Lenburg, M., Pirtskhalava, T., Cartwright, A., Kirkland, J.L. Aging, Fat Depot Origin, and Fat Cell Progenitor Expression Profiles: Setting the Stage for Altered Fat Tissue Function. Obesity Res. 13 (Suppl.): A113, 2005.

51. Thomou, T., Tchkonia, T., Giorgadze, N., Lash, T., Lenburg, M., Pothoulakis, C., Karagiannides, I., Kirkland, J. L. Homeobox gene expression profiles are distinct in human preadipocytes isolated from different fat depots. Obesity Rev. 6 (Suppl. 1): 194, 2005.

50. Kirkland, J., Tchkonia, T., Lenburg, M., Prabhu, V., Becker, K. Identification of distinct expression profiles during adipogenesis in human preadipocytes isolated from different fat depots. Obesity Rev. 6 (Suppl. 1): 12, 2005.

49. Guo, W., Pirtskhalava, T., Tchkonia, T., Xie, W., Thomou, T., Han, J., Wang, T., Cartwright, A., Kirkland, J. L. Aging results in paradoxical susceptibility of fat cell progenitors to lipotoxicity. Obesity Res. 12 (Suppl): A31, 2004.

48. Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Thomou, T, Lenburg, M., Frampton, G., Cartwright, M., Forse, A., Kirkland, J. L. Human preadipocyte strains derived from single cells by stably expressing telomerase retain fat depot-specific characteristics. Obesity Res. 12 (Suppl): A2, 2004.

47. Kirkland, J. L., Tchkonia, T., Frampton, G., Lenburg, M., Giorgadze, N., Sabban, A., Pirtskhalava, T., Cartwright, M., Gerry, N., Forse, M., Thomou, T., Gileadi, O. Fat cell precursors from different human fat depots are distinct: Morphological and gene expression profiles. Int. J. Obesity 28 (Suppl. 1): S99, 2004.

46. Kirkland, J. L. Adipogenesis and aging: Does aging make fat go MAD? Gerontologist 43 (Special Issue 1): 82, 2003.

45. Kirkland, J. L., Tchkonia, T., Tchoukalova, Y., Giorgadze, N., Pirtskhalava, T., Karagiannides, I., Forse, A., Koo, A., Stevenson, M., Chinnappan, D., Peterson, C., Jensen, M. Abundance of two human preadipocyte subpopulations with distinct capacities for replication, adipogenesis, and apoptosis varies among fat depots. Obesity Res. 11 (Suppl.): A37, 2003.

44. Han, J., Farmer, S., Corkey, B., Kirkland, J. L., Guo, W., Xie, W. Octanoate, potentially a partial ligand of PPARγ, causes delipidation of mature adipocytes. Obesity Res. 11 (Suppl.): A45, 2003.

43. Guo, W., Xie, W., Lei, T., Hamilton, J., Kirkland, J. L., Corkey, B., Han, J. MCFA mediates a starvation-like metabolic status in adipocytes. Obesity Res. 11 (Suppl.): A15, 2003.

42. Kirkland, J. L., Tchkonia, T., Tchoukalova, Y., Giorgadze, N., Pirtskhalava, T, Karagiannides, I., Forse, R. A., Koo, A., Stevenson, M., Jensen, M. Human preadipocyte subtypes with different capacities for

replication and differentiation vary among depots. Int. J. Obesity 27 (Suppl. 1): S5, 2003.

41. Han, J., Hamilton, J. A., Corkey, B. E., Kirkland, J. L., Guo, W. Effects of octanoate on triglyceride storage in 3T3-L1 adipocytes. Int. J. Obesity 26 (Suppl. 1):S136, 2002.

40. Tchkonia, T. T., Giorgadze, N., DePonte, M., Forse, R. A., Kirkland, J. L. Telomere shortening inhibits differentiation of human preadipocytes into fat cells. Prog. Ann. Endo Soc. M. 84:564, 2002 (received Glenn Foundation Aging and Endocrinology Award).

39. Kirkland, J. L., Tchkonia, T. T., Karagiannides, I., Pirtskhalava, T., Shpilman, A., Timchenko, N. Increased CUG triplet binding protein activity resulting in C/EBPβ-LIP production contributes to impaired adipogenesis with aging. Int. J. Obesity 26 (Suppl. 1):S65, 2002.

38. Kirkland, J. L., Tchkonia, T. T., Karagiannides, I., Pirtskhalava, T., Hadzopoulou-Cladaras, M., Dobson, D.E., Timchenko, N. Adipogenesis and aging. Prog. Ann. M. AAAS. 168:A8, 2002.

37. Han, J.R., Farmer, S.R., Corkey, B.E., Kirkland, J.L., Guo, W. Medium chain fatty acids reduce lipid storage in adipocytes by down-regulating the expression of adipogenic genes. Obesity Res. 9 (Suppl. 3): 64S, 2001.

36. Tchkonia, T., Wise, B., Chan, G., Karagiannides, I., Kirkland, J.L. Aging, CHOP expression, and preadipocyte differentiation. Obesity Res. 9 (Suppl. 3): 147S, 2001.

35. Tchkonia, T., Karagiannides, I., Hadzopoulou-Cladaras, M., Dobson, D.E., Farmer, S.R., Sierra, A., Kirkland, J.L. Decreased PPARγ expression results in impaired adipogenesis with aging. Obesity Res. 9 (Suppl. 3): 145S, 2001.

34. Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Tchoukalova, Y., Forse, R.A., DePonte, M., Stevenson, M., Guo, W., Karagiannides, I., Jensen, M.D., Lash, T., Waloga, G, Kirkland, J.L. Molecular and cellular mechanisms of effects of fat depot origin on human preadipocyte differentiation. Obesity Res. 9 (Suppl. 3): 144S, 2001.

33. Tchkonia, T., DePonte, M., Forse, R.A., Pirtskhalava, T., Kirkland, J.L. Telomerase expression enhances differentiation of passaged human preadipocytes. Obesity Res. 9 (Suppl. 3): 145S, 2001.

32. Kirkland, J.L., Tchkonia, T., Karagiannides, I., Hadzoupoulou-Cladaras, M., Caserta, F., Corkey, B.E. Regional differences in preadipocyte function. Obesity Res. 7 (Suppl. 1):10S, 1999.

31. Corkey, R.F., Guo, W., Porterfield, D.M., Smith, P.J.S., Kirkland, J.L., Corkey, B.E. Energy metabolism in differentiated and undifferentiated 3T3-L1 preadipocytes. Obesity Res. 7(Suppl. 1):76S, 1999.

30. Choi, J., Guo, W., Corkey, B.E., Kirkland, J.L., Hamilton, J.A.: Incorporation of very long chain fatty acids into 3T3-L1 cells. Obesity Res. 7(Suppl. 1):77S, 1999.

29. Guo, W., Corkey, B.E., Hamilton, J.A., Kirkland, J.L.: Aging affects fatty acid storage and oxidation in cultured preadipocytes. Obesity Res. 7(Suppl. 1):76S, 1999.

28. Naglie, G., Goldlist, B., Etchells, E., Kirkland, J.L., Detsky, A., Tansey, C., Tomlinson, G., O'Rourke, K., Ogilvie-Harris, D. A randomized trial of interdisciplinary care on an orthopedic-geriatric unit for elderly hip fracture patients. The Gerontologist 39 (Special Issue 1):420, 1999.

27. Naglie, G., Goldlist, B., Etchells, E., Kirkland, J.L., Detsky, A., Tansey, C., Tomlinson, G., O'Rourke, K., Ogilvie-Harris, D. A randomized trial of interdisciplinary care on an orthopedic-geriatric unit for elderly hip fracture patients. Clinical and Investigative Medicine 22 (Suppl.):S27, 1999.

26. Caserta, F., Civelek, V., Hamilton, J.A., Kirkland, J.L., Corkey, B.E.: Differences in free fatty acid uptake in differentiated preadipocytes from different anatomic regions. Int. J. Obesity 22(Suppl. 3): S57, 1998.

25. Guo, W., Cummins, P., Corkey, B.E., Hamilton, J., Kirkland, J.L.: NMR determination of exogenous medium- and long-chain free fatty acid (FFA) incorporation into differentiating preadipocytes. Int. J. Obesity 22(Suppl. 3): S108, 1998.

24. Naglie, G., Daciuk, J., Marshall, V., Orridge, L., Kirkland, J.: Personal safety concerns of recipients and providers of home care in Toronto. Gerontologist 37 (Suppl. 1): 254-255, 1997.

23. Naglie, G., Daciuk, J., Marshall, V., Orridge, L., Kirkland, J.: Personal safety concerns of home care providers in Toronto. Clin. Invest. Med. 20 (Suppl. 1): S23, 1997.

22. Kirkland, J.L., Cummins, P., Steppan, C., Dobson, D.E., Cladaras, M.H.: Decreasing preadipocyte differentiation capacity with aging is associated with blunted expression of the transcription factor, CCAAT enhancer binding protein α. Obesity Res. 5 (Suppl. 1): 22S, 1997.

21. Corkey, B.E., Kirkland, J.L., Cummins, P., Brown, N.F., McGarry, J.D., Thumelin, S., Prentki, M.: Control of fat cell fatty acid (FFA) partitioning by long chain CoA (LC-CoA) and carnitine palmitoyltransferase (CPT)-1. Obesity Res. 5 (Suppl. 1): 7S, 1997.

20. Naglie, G., Daciuk, J., Marshall, V., Orridge, C., Kirkland, J., Home health records: A survey of the perceptions of providers and recipients of home care services in Toronto. Gerontologist 36 (Suppl. 1): 359, 1996.

19. Naglie, G., Daciuk, J., Marshall, V., Orridge, C., Kirkland, J., Home health records: A survey of the perceptions of providers and recipients of home care services in Toronto. Clin. Invest. Med. 19 (Suppl. 1):S27, 1996.

18. Straus, S., Naglie, G., Daciuk, J., Kirkland, J., Orridge, C., Marshall, V.: A description of recipients of chronic home care services in Toronto. Clin. Invest. Med. 18:B61, 1995.

17. Clark P., Goldlist, B., Gordon, M., Kirkland, J., Klapecki, K., Naglie, G.: Evaluating and developing standards of long-term care: the role of the Ontario Chief Coroner's Geriatric and Long Term Care Committee. Gerontologist 34(Special issue 1): 230, 1994.

16. Kirkland, J.L., Hollenberg, C.H., Gillon, S.: Ageing, differentiation, and gene expression in rat epididymal preadipocytes. Clin. Invest. Med. 17:B53, 1994.

15. Naglie, G., Daciuk, J., Marshall, V., Orridge, C., Kirkland, J.L.: A comparative survey of nurses and homemakers providing homecare services in Toronto. Clin. Invest. Med. 17:B56,1994.

14. Straus, S., Naglie, G., Verwoerd, F., Hamilton, L., Gottfried, M., Kirkland, J.L: Discharges home following inpatient geriatric rehabilitation of highly disabled elderly patients. Clin. Invest. Med. 17:B53, 1994.

13. Brymer, C., Kohm C., Naglie, G., Shekter-Wolfson, L., Zorzitto, M., Kirkland, J.L.: The effect of geriatrics services on the number of acutely hospitalized patients awaiting long-term care placement. J. Am. Ger. Soc. 41:SA61, 1993 Received outstanding abstract award in the Health Services Research Section.

12. McDermott, G.F., Whiteside, C.I., Kirkland, J.L.: Mesangial cells can be cultured from aged Fischer 344 rats with glomerular hypertrophy and mesangial expansion display normal intrinsic function. J. Am. Soc. Neph. 4:3, 818, 1993.

11. McDermott, G.F., Whiteside, C.I., Kirkland, J.L.: Mesangial cells can be cultured from aged Fischer 344 rats with glomerulosclerosis and display normal contractility. Clin. Invest. Med. 16:B60, 1993.

10. Kirkland, J.L., Hollenberg, C.H., Kindler, S.: Ageing results in increased elaboration of autocrine inhibitors of replication by rat preadipocytes. Clin. Invest. Med. 16:B56, 1993.

9. Naglie, G., Goldlist, B., Wilson, B., Kirkland, J.L., Isenberg, Y., Gordon, M., Klapecki, P., Clark, P.: Cluster deaths in long term care institutions. Clin. Invest. Med. 14:A55, 1991.

8. Kirkland, J.L., Hollenberg, C.H., and Kindler, S: Inhibitory effect of fatty acids on lipoprotein lipase activity of cultured rat adipocyte precursors. Int. J. Obesity 14 (Suppl. 2):85, 1990.

7. Kirkland, J.L., Hollenberg, C.H., and Gillon, W.S.: Effect of hypophysectomy on adipocyte precursor replication and differentiation. Prog. & Abstracts 71st Annu. Meeting Endocrine Soc. 869, 1989.

6. Kirkland, J.L., Hollenberg, C.H., Gillon, W.S.: Senescence, site, and the replication and differentiation of adipocyte precursors. Clin. Res. 37:453A, 1989.

5. Kirkland, J.L.: Evolution and ageing. Genome 30 (Suppl. 1):34, 1988.

4. Lu, A., Piñeyro, M.A., Kirkland, J.L., Li, Z.H., Gregerman, R.I.: Adenylate cyclase of differentiated preadipocytes in primary culture: relative lack of N_i may determine the difference from adipocyte and prostaglandin E_1 and catecholamine responses. Adv. Second Messenger Phosphoprotein Res. 21A, 1988.

3. Van Loon, G.R., Shum, A., Kirkland, J.L., Sole, M.J.: Serotoninergic modulation of ACTH secretion in the interaction between stress and corticosteroid negative feedback. Prog. & Abstracts 59th Annu. Meeting Endocrine Soc. 145, 1977.

2. Van Loon, G.R., Shum, A., Kirkland, J.L., Green, S.: Role of brain serotonin in the stress mechanism which maintains responsiveness of ACTH secretion in spite of corticosteroid negative feedback. Prog & Abstracts 58th Annu. Meeting Endocrine Soc. 312, 1976.

1. Van Loon, G.R., Shum, A., Kirkland, J.L., Green, S., Sole, M.J.: Hypothalamic serotonin modulates the ACTH response to repeated stress. Clin. Res. 24:663A, 1976.

Patents

1. Kirkland, J.L. Human preadipocyte cell strains and uses therefor. US PCT/31635 (2002).

2. Kirkland, J.L., Tchkonia, T. Human adipocyte cell populations and methods for identifying modulators of same. US Provisional Patent 60/377,500 (2002).

3. Kirkland, J.L., Tchkonia, T., van Deursen, J.M., Baker, D.J. Transgenic Animals Capable of Being Induced to Delete Senescent Cells. Patent 61/499,616. USA 07039.1060P01. 6/21/2011.

4. Tchkonia, T., Kirkland, J.L., van Deursen, J.M., Baker, D.J. Transgenic Animals Capable of Being Induced to Delete Senescent Cells. Patent 61/567,587. USA 07039.1060P02. 12/6/2011.

5. van Deursen, J.M., Kirkland, J.L., Tchkonia, T., Baker, D.J. Transgenic Animals Capable of Being Induced to Delete Senescent Cells. Patent PCT/US2012/043613. USA 07039.1060WO1. 6/21/2012.

6. Baker, D.J., van Deursen, J.M., Kirkland, J.L., Tchkonia, T. Alzheimer's Disease Animal Models and Uses Thereof. Patent 13/975,081. USA 200201.403. 8/23/2013.

7. van Deursen, J.M., Baker, D.J., Kirkland, J.L., Tchkonia, T. Animal Models for Treating Cardiovascular Disease and Uses Thereof. Patent 13/975,077. USA 200201.406. 8/23/2013.

8. van Deursen, J.M., Baker, D.J., Kirkland, J.L., Tchkonia, T., LeBrasseur, N.K., Xu, M. Animal Models for Treating Type 2 Diabetes and Uses Thereof. Patent 13/975,153. USA 200201.407. 8/23/2013.

9. van Deursen, J.M., Baker, D.J., Kirkland, J.L., Tchkonia, T., Demaria, M., Campisi, J. Animal Models for Cancer and Uses Thereof. Patent 13/975,217. USA 44237-718.201. 8/23/2013.

10. van Deursen, J.M., Baker, D.J., Kirkland, J.L., Tchkonia, T., Campisi, J., Demaria, M., Laberge. R.M. Animal Models of Age-Related Disorders and Age-Sensitive Traits Associated with Senescence-Inducing Stimuli and Uses Thereof. Patent 13/975,179. USA 200201.410. 8/23/2013.

11. Tchkonia, T., van Deursen, J.M., Kirkland, J.L., Baker, D.J. Transgenic Animals Capable of Being Induced to Delete Senescent Cells. Patent 14/125,841. USA 07039.1060US1. 3/4/2014.

12. Kirkland, J.L., Tchkonia, T., Zhu, Y. Methods and Compositions for Killing Senescent Cells and for Treating Senescence-Associated Diseases and Disorders. Patent 61/932,704. USA 200201.419P1. 1/28/2014.

13. Kirkland, J.L., Tchkonia, T., Zhu, Y., Laberge. R.M., Campisi, J., Davalos, A., Demaria, M., David, N., Vasserot, A.P., Baker, D.J., Childs, B.G., van Deursen, J.M. Methods and Compositions for Killing Senescent Cells and for Treating Senescence-Associated Diseases and Disorders. Patent 61/932,711. USA 200201.418P1. 1/28/2014.

14. Kirkland, J.L., Tchkonia, T., Zhu, Y., Laberge. R.M., Campisi, J., Davalos, A., Demaria, M., David, N., Vasserot, A.P., Baker, D.J., Childs, B.G., van Deursen, J.M. Methods and Compositions for Killing Senescent Cells and for Treating Senescence-Associated Diseases and Disorders. Patent PCT/US2015/013387. USA 200201.419WO1. 1/28/2015.

15. Kirkland, J.L., Tchkonia, T., Zhu, Y. Methods and Combinations for Killing Senescent Cells and for Treating Senescence-Associated Diseases and Disorders. Patent PCT/US2015/013376. USA 200201.418WO1. 1/28/2015.

16. Kirkland, J.L. Senolytics: Achilles' Heels of Senescent Cells. Patent 62/130,545. USA 44237-721.103. 3/9/2015.

17. Kirkland, J.L. Identifying Downstream Targets of Potential Senolytic Drugs: Dasatinib and Quercetin.

Patent 62/139,168. USA 44237-721.104. 3/27/2015.

18. Baker, D.J., van Deursen, J.M., Kirkland, J.L., Tchkonia, T. Transgenic Animals Capable of Being Induced to Delete Senescent Cells. Patent 14/792,208. USA 07039.1060002. 7/6/2015.

19. Laberge. R.M., Campisi, J., Davalos, A., Demaria, M., David, N., Vasserot, A.P., Baker, D.J., Bennett G. Childs; Kirkland, J.L., Tchkonia, T., van Deursen, J.M., Zhu, Y. Compositions and Methods for Treating Senescence-Associated Diseases and Disorders. Patent 62/190,191. USA 44237-735.101. 7/8/2015.

20. Laberge. R.M., Campisi, J., Davalos, A., Demaria, M., David, N., Vasserot, A.P., Baker, D.J., Childs, B.G., Kirkland, J.L., Tchkonia, T., van Deursen, J.M., Zhu, Y. Compositions and Methods for Treating Senescence-Associated Diseases and Disorders. Patent 62/195,209. USA 44237-735.102. 7/21/2015.

21. Demaria, M., Davalos, A., Campisi, J., Laberge. R.M., David, N., Vasserot, A.P., Baker, D.J., Childs, B.G., Kirkland, J.L., Tchkonia, T., van Deursen, J.M., Zhu, Y. Compositions and Methods for Treating Senescence-Associated Diseases and Disorders. Patent 62/289,097. USA 44237-735.103. 1/29/2016.

22. Jan M.A. van Deursen Ph.D.; Darren J. Baker Ph.D.; James L. Kirkland M.D., Ph.D.; Tamar Tchkonia Ph.D; Judith Campisi; Marco Demaria; Remi-Martin Laberge. Animal Models of Age-Related Disorders and Age-Sensitive Traits Associated with Senescence-Inducing Stimuli and Uses Thereof. Patent 15/067,543. USA 44237-719.301. 3/11/2016.

23. Yi Zhu Ph.D.; Tamar Tchkonia Ph.D; James L. Kirkland M.D., Ph.D.; Remi-Martin Laberge; Judith Campisi; Albert Davalos; Marco Demaria; Nathaniel David; Alain P. Vasserot; Darren J. Baker Ph.D.; Bennett G. Childs; Jan M.A. van Deursen Ph.D.; Jose A. Lopez-Dominguez. Compositions and Methods for Treating Senescence-Associated Diseases and Disorders. Provisional patent PCT/US2016/041646. USA 44237-735.601. 7/8/2016.

24. . Jordan D. Miller Ph.D.; Nathan K. LeBrasseur Ph.D.; Allyson K. Palmer; James L. Kirkland M.D., Ph.D.; Tamar Tchkonia Ph.D; Yi Zhu Ph.D. Killing Senescent Cells and Treating Senescence-Associated Conditions Using a SRC Inhibitor and a Flavonoid. Patent 15/113,723. USA 44237-721.832, 7/22/2016.

25. Jennifer Elisseeff; Tamar Tchkonia Ph.D; James L. Kirkland M.D., Ph.D.; Remi-Martin Laberge; Judith Campisi; Albert Davalos; Marco Demaria; Nathaniel David; Alain P. Vasserot; Darren J. Baker Ph.D.; Bennett G. Childs; Jan M.A. van Deursen Ph.D.; Okhee Jeon; Chaekyu Kim; Allyson K. Palmer. Methods and Compositions for Killing Senescent Cells and for Treating Senescence-Associated Diseases and Disorders. Patent 15/114,762. USA 44237-721.831. 7/27/2016.

SELECTED PAST AND PRESENT COMMITTEE MEMBERSHIPS

National Advisory Council, National Institute on Aging, Bethesda, MD

President-Elect, 2016-, American Federation for Aging Research

Board of Directors, American Federation for Aging Research

Clinical Trials Advisory Panel (CTAP), National Institute on Aging, Bethesda, MD

Scientific Advisory Board, European Research Institute for the Biology of Ageing

Research Committee, Mayo Clinic

Research Review Group, Mayo Clinic

Chair-Elect and Chair, 2011-2014, Biological Sciences Section, Gerontological Society of America

Co-Chair, 2012 Gordon Research Conference on the Biology of Aging

Buck Institute Geroscience External Advisory Board, California

External Advisor, Newcastle Biomedical Research Centre in Ageing and Age Related Diseases, Newcastle University, United Kingdom

Association of Directors of Geriatric Academic Programs (Mayo Clinic representative)

Editorial Board, Aging Cell, 2010-

Committee to Review the Division of Aging Biology, NIA, NIH, 2009

Executive Committee, Aging Theme, Mayo Clinic

Editorial Board, Obesity Research

Ethics Committee, North American Association for the Study of Obesity

Qualifying Examination Committee (Chair), Department of Medicine Graduate Program, Boston University

Executive Committee, Boston Obesity/Nutrition Research Center

Founders' Committee, AdipoGenix Corp.

Scientific Advisory Committee, Gensci Regeneration Sciences, Inc.

Board of Directors, Queen Elizabeth Hospital Research Institute, Toronto, Canada

Healthy Elderly Project Team, Public Health Branch, Ontario Ministry of Health
Management Council, University of Toronto Regional Geriatric Program

Medical Advisory Committee, Queen Elizabeth Hospital

Board of Governors' Planning Committee, Queen Elizabeth Hospital

Board of Advisors, Dynacare Corporation

Chief Coroner's Committee for Review of Geriatric Deaths

Task Force on Technology for the Elderly, Metropolitan Toronto District Health Council

Board of Directors, Community Older Person's Alcohol Program

Task Force for Assessment of the Elderly, Public Health Branch, Ontario Ministry of Health

Continuing Care Committee, Ontario Hospital Association

Research Committee, Interdepartmental Division of Geriatrics, Faculty of Medicine, University of Toronto

Board of Directors, Osteopharm Corporation

Clinical Services Council, University of Toronto Regional Geriatric Program

Central Service Area Management Committee, University of Toronto Regional Geriatric Program

Research Institute Strategic Planning Committee, Queen Elizabeth Hospital

GRANTS

ACTIVE

P01 AG41122 Kirkland (PI) 04/15/12-04/14/17
NIH/NIA $1,248,000
Cellular Senescence and Aging
The hypothesis of this project is that preventing the accumulation of senescent cells or their effects can restore age-related decrements in function. The following Aims are to determine effects on healthspan of: 1) eliminating senescent cells in a novel animal model, 2) Inhibiting the senescence-associated secretory phenotype (SASP) by manipulating Jak/Stat, and 3) Inhibiting the SASP by manipulating mTOR.

R37 AG013925 Kirkland (PI) MERIT Award 05/15/97-3/31/2021
NIH/NIA $287,718
Effect of Aging on Preadipocyte Differentiation.
The major goal of this project is to develop agents to target senescent cells.

R24 AG044396 Kirkland (PI) 9/30/13-12/31/17
NIH/NIA $146,257
Geroscience Network
The aims of this grant are to: 1) establish an interdisciplinary network comprising aging centers across the nation as the basis for a Geroscience Initiative to understand and exploit links between aging and genesis of chronic disease, 2) use retreats and working groups to design and initiate strategies, translational paradigms, and resources needed to test our hypothesis, and 3) use faculty exchanges to catalyze further development of the strategies, translational paradigms, curricula, and resources needed to test our hypothesis.

R21 AG047984 Kirkland (PI) 8/18/2015-8/17/2017
NIH/NIA
Imaging for Cellular Senescence
The specific aims are to: 1) develop novel imaging methods based on detecting protein aggregates produced by senescent cells. Protein aggregates, which may be both a cause and consequence of cellular senescence, are implicated in the genesis of age-related diseases and dysfunction and 2) develop imaging methods based on the metabolic attributes of senescent cells. We found senescent cells are metabolically active, with increased aerobic and anaerobic glycolysis.

R21 AG049182 Kirkland (PI) 8/14/2015-8/13/2017
NIH/NIA
Senescent Cell Transplantation Model
The specific aims are to: 1) optimize and characterize the senescent cell transplantation model and 2) develop methods for manipulating pathways in transplanted senescent cells so mechanisms through

which senescent cells cause dysfunction can be elucidated.

Ted Nash Long Life Foundation Kirkland (PI) 02/1/2014-11/30/2016
Senolytic Drugs: Agents That Target Senescent Cells and Enhance Healthspan
The specific aims are to: 1) select which of our potential senolytic agents are most effective *in vitro*, 2 select the best 10 drugs or combinations from Aim 1 and test their ability to clear senescent cells *in vivo*, 3) identify which of the best 4 drugs or combinations from Aim 2 is most effective at alleviating senescence-related phenotypes.

P30DK50456 Levine (PI) 4/5/2011-4/4/2016
NIH/NIDDK
Minnesota Obesity Center
Director, Adipocyte Subcore of the Molecular and Cellular Basis of Obesity Core
The aims of the Adipocyte Subcore are to develop, store, and provide mouse and human adipocyte cell strains for use by NIH-funded investigators. Role: Adipocyte Subcore PI

HL111121-1 Miller (PI) 1/4/2013-11/30/2017
NIH
Role of SIRT6 in calcific aortic valve disease
To determine the roles of oxidative stress and SIRT6-dependent epigenetic modifications in the initiation and progression of calcific aortic valve disease in mice.
Role: Co-I

AG19899 Bartke (PI) 5/1/2012-04/30/2017
NIH
Longevity genes and calorie restriction: early post-natal effects
The hypothesis is that the first few weeks of postnatal life represent a developmentally malleable period in which the pace of aging is set for each mouse, triggered by a combination of factors including GH/IGF-1 levels and nutritional signals. The aims are: 1) To extend our original study of lifespan extension in the "crowded litter" protocol by assessment of dose and timing effects, healthspan outcomes, and candidate mechanisms. 2) To identify the candidate mechanisms of longevity reversal in Ames dwarf mice given a brief exposure to GH early in postnatal development. 3) To evaluate the crowded litter model for effects on the growth hormone-insensitive, GH receptor-deleted (GHR-*I*-; Laron dwarf) mice.
Role: Co-I

MNP IF #14.06 Kirkland (Co-PI with Arriaga) 05/2014-05/2016
Minnesota Partnership for Biotechnology
Mass Cytometry Infrastructure for Fundamental and Translational Research in Minnesota
Provides support for investigators in cellular senescence and additional aging research fields for conducting single cell mass spectrometry.

R01 DK40484 (PI: M. Jensen) 05/15/2014-04/30/2018
NIDDK
FFA Metabolism in Different Types of Human Obesity.
Three protocols were proposed for years 20-25. The first is the role of the liver in FFA uptake and VLDL-TG release in class III obesity. The specific aim of this protocol is to determine the balance between fatty acid production in the form of VLDL-TG and fatty acid storage from FFA in morbidly obese patients with and without fatty liver disease. The second protocol was to determine the simultaneous uptake of FFA in liver, subcutaneous and visceral adipose tissue, as well as postural and locomotion muscles. The third protocol was to determine the contribution of chylomicron-TG fatty acids to muscle fatty acid metabolism.
Role: Co-I

PAST

AG-SS-2711-11-1 Kirkland (PI) 11/1/2011-10/31/2015
Ellison Medical Foundation
Aging and Adult "Stem" Cell Transplantation: Seed vs. Soil
The aims are: 1) In order to enhance adipose-derived stem cell (ADSC) transplant success, we will compare eliminating senescent cells from the "seed" to eliminating them from the "soil". 2) In order to enhance ADSC transplant success, we will ameliorate the senescence-associated secretory phenotype.

1P01 AG031736 (Bartke) 4/15/2009-4/14/2014
NIH/NIA $293,646 (Project 4)
The Somatotrophic Axis and Healthy Aging: A search for mechanism, Project 4 Kirkland (PI) IGF-1's Influence on Pre-Adipocytes
The aims are to test if decreasing IGF-1 will: 1) reduce subcutaneous preadipocyte utilization with aging, preserving adipogenic capacity and delaying stress-responsive anti-adipogenic factor expression, and impair visceral preadipocyte development into fat, 2) delay age-related development of a metabolically unfavorable preadipocyte secretory profile with increased inflammatory cytokine, chemokine, and matrix remodeling protein production, and 3) generation of senescent preadipocytes is delayed by reducing life-long IGF-1 exposure.

PO1 AG 004875 (Khosla) 7/1/09-6/30/14
NIH/NIA $264,218
Project 1: Pathophysiology of Osteoporosis
The major goals of this project are to use the human as the experimental model to address key, unresolved issues regarding E action on bone, including definitively establishing whether follicle-stimulating hormone modulates bone resorption in the setting of E deficiency and defining mechanisms for the age-related decrease in bone formation. Role: Collaborator

Kirkland (PI) 01/2012-12/2013
Glenn Award for Research in Biological Mechanisms of Aging
Glenn Foundation for Medical Research
Role of Cellular Senescence in Age-Related Dysfunction
The aim is to characterize the secretory profile of senescent preadipocytes

Kirkland (PI) 12/1/2008-01/31/2010
Ted Nash Long Life Foundation $100,000
Restoring Function by Reversing the Senescent Secretory Phenotype
The specific aims are: 1) to define the inflammatory secretory phenotype of senescent cells in human fat tissue and identify responsible mechanisms, 2) to determine if blocking the senescent phenotype restores function.

R01 AG23960 Kirkland (PI) 09/30/03-11/31/09
NIH/NIA $350,000
Regional Differences in Preadipocyte Development
The Aims are to test the hypotheses that: 1) developmental regulators underlie regional variation in preadipocyte function, 2) these regulators contribute to the distinct cell dynamic characteristics of the 2 preadipocyte subtypes we found, and 3) regional differences in preadipocyte subtype qualities or quantities cause differences in tissue function.

Glenn/AFAR Breakthroughs in Gerontology Award Kirkland (PI) 07/2012-06/2014
Glenn Foundation/AFAR
INK-ER-Cre Mice: A Novel Tool for Uncovering How Senescent Cells Cause Age-Related Dysfunction

The Aims are to: 1) To generate *INK-ER-Cre* mice, which can be crossed to mice with floxed alleles to eliminate expression of specific genes only after administering tamoxifen and only in senescent cells and 2) To test transgene functionality and demonstrate proof of principle that SASP components can be targeted.

R01 DK56891 (Kirkland) 02/01/00-01/31/07
NIH/NIDDK $153,288
Effect of Fat Depot Origin on Preadipocyte Function
The major goal of this grant is to define mechanisms responsible for anatomic variation in capacity of preadipocytes to differentiate.

P01DK 46200 (Corkey) 09/30/97-03/31/08
NIH/NIDDK $1,046,897 (Adipocyte Core subcontract $91,835)
Boston Obesity/Nutrition Research Center (Adipocyte Core Director: Kirkland)
The major goal of this Center is to promote obesity-related research. The Adipocyte Core provides adipocytes, preadipocytes and their products from humans and experimental animals, teaches techniques to prepare and study these cells and their products and has developed a human preadipocyte bank.

05-005A (Kirkland) 10/01/05-12/31/07
Takeda Pharmaceuticals $112,825
Effect of Fat Depot Origin on Preadipocyte Function: Mechanisms of Regional Differences in Effects of Thiazolidinediones: Role of AMP Kinase
The major goal of this grant is to define effects of human fat depot origin on thiazolidinedione activation of AMP kinase.

R01 DK56133 (Guo) 04/01/00-03/31/05
NIH/NIDDK $125,000
Lipid Metabolism in Fat Cells
The major goal of this grant is to determine molecular mechanisms in adipocytes responsible for reduced storage and increased oxidation of medium chain fatty acids compared to long chain FA.

R43DK DK62558 (Brooks) 07/01/02-06/30/03
NIH/NIDDK
Secreted Proteins from Adipocytes and Preadipocytes
The major goal of this grant is to determine the proteins secreted by preadipocytes and to employ this information to develop anti-obesity drug targets. This grant received a priority score of 185.

R44DK54588 (Waloga) 4/1/01-5/31/03
NIH/NIDDK $750,000
Anti-Obesity Drug Development Using Human Preadipocytes
The goal of this grant is to create drugs that will inhibit human preadipocyte development into fat cells.

R43 DK57965 (Brooks) 08/01/00-07/31/01
NIH/NIDDK $74,535
Specific Inhibitors of Preadipocyte Replication
The goals of this grant are to establish high-throughput screens for detecting specific inhibitors of preadipocyte replication and to scale up production and identify an age-related activity we have found in preadipocyte conditioned medium that is a potent, selective inhibitor of rat and human preadipocyte replication.

RO1AG14040 (Millen) 07/01/97-06/30/00
NIH/NIA $501,277
Causes and Consequences of Malnutrition in the Homebound Elderly.
The major goals of this project are to determine the prevalence and consequences of malnutrition and weight loss in a disabled, disadvantaged elderly urban population.

R43DK (Brooks) 11/01/02-04/30/03
NIH/NIDDK
New Agents That Inhibit Fatty Acid Accumulation
The major goal of this grant is to determine the mechanism of inhibition of l fat cell lipid accumulation by a new class of N-aryl-benzamide agents.

Selected Presentations

Kirkland, J.L. Cellular Senescence: At the Nexus of Mechanisms of Age- and Obesity-Related Dysfunction. OCC/SFRR-E Conference 2017. Berlin, Germany. June, 2017.

Kirkland, J.L. Senescence, Senolytics, and Cardiovascular Function: A Potential New Treatment Paradigm. University of Michigan Biology of Cardiovascular Aging Symposium. Ann Arbor, MI. June, 2017.

Kirkland, J.L. Cellular Senescence, Senolytics, Chronic Disease, and Aging. 46th Annual AGE Meeting. Brooklyn, NY. June, 2017.

Kirkland, J.L. Targeting Senescent Cells: The Path to Translation. MIXiii BIOMED. Tel Aviv, Israel. May, 2017.

Kirkland, J.L. Senolytics: The Path to Translation. Symposium on the Biology of Human Aging. Brown University. Providence, RI. May, 2017.

Kirkland, J.L. That Was the Year That Will Be: Cellular Senescence. American Geriatrics Society Annual Meeting. San Antonio, TX. May, 2017.

Kirkland, J.L. Aging, Cellular Senescence, and Senolytics: The Path to Translation. Understanding Mechanisms of Aging and Healthspan. University of Virginia. Charlottesville, VA. May, 2017.

Kirkland, J.L. Cellular Senescence and Aging. Science of Successful Aging Summit. University of Wisconsin. Madison, WI. April, 2017.

Kirkland, J.L. Translating Interventions Targeting Fundamental Aging Processes into Treatments for Chronic Diseases and Dysfunction. Boao Forum for Biomedical Sciences. Hainan, China. March, 2017.

Kirkland, J.L. Interventions Targeting Cellular Senescence: The Path to Translation. Roswell Park Seminar. Buffalo, NY. February, 2017.

Kirkland, J.L. Interventions Targeting Cellular Senescence: The Path to Translation. Harry Lyman Hooker Lecture. Hamilton, Canada. January, 2017.

Kirkland, J.L., Tchkonia, T. Senolytics and SASP-inhibitors for Age-Related Chronic Diseases and Dysfunction. 2nd Scripps Florida Symposium. Jupiter, FL. January, 2017.

Kirkland, J.L. Markers of Senescent Cell Burden; Markers Predicting Response to Agents Targeting Senescent Cells. National Institute on Aging. Bethesda, MD. December, 2016.

Kirkland, J.L. Aging, Cellular Senescence, and Translation into clinical Interventions. Symposium on Age-related Macular Degeneration. Harvard University. Boston, MA. October, 2016.

Kirkland, J.L. Senolytics and SASP-Inhibitors for Age-Related Chronic Diseases and Dysfunction. Barshop Symposium on Aging. Bandera, TX. October, 2016.

Kirkland, J.L. Barriers to the Pre-Clinical Development of Therapeutics that Target Aging Mechanisms. GEMSSTAR Models and Studies of Aging. Bethesda, MD. September, 2016.

Kirkland, J.L. Interventions: Moving from Preclinical to Phase III Trials: Phases I & II. GEMSSTAR Models and Studies of Aging. Bethesda, MD. September, 2016.

Kirkland, J.L. Targeting Aging Processes to Delay, Prevent, or Treat Chronic Diseases and Loss of Resilience. Boston University. Boston, MA. September, 2016.

Kirkland, J.L. Targeting Senescent Cells to Delay, Prevent, or Treat Age-Related Dysfunction and Diseases. American Society for Bone and Mineral Research Annual Meeting. Atlanta, GA. September, 2016.

Kirkland, J.L., Larsson, L., Tchkonia, T., LeBrasseur, N.K., Sieck, G. Cellular Senescence, Frailty, and Metabolic Dysfunction: Towards Potential Interventions for Critical Illness Myopathy. 22nd Mayo Karolinska Annual Scientific Meeting. Rochester, MN. September, 2016.

Kirkland, J.L. Senescent Cell Burden: Frailty, Senolytics, and SASP-Inhibitors. Workshop on Pathways, Contributors, and Correlates of Functional Impairment across Specialties. Bethesda, MD. August, 2016.

Kirkland, J.L. De la Ciencia del Envejecimiento a las Intervenciones Terapéuticas. 5th Annual Congress of the National College of Geriatric Medicine. Mexico City, Mexico. August, 2016.

Kirkland, J.L. Tejido Adiposo y envejecimiento: Potenciales intervenciones. 5th Annual Congress of the National College of Geriatric Medicine. Mexico City, Mexico. August, 2016.

Kirkland, J.L. Senescencia celular y biología del envejecimiento, enfermedad y fragilidad. 5th Congress of the National College of Geriatric Medicine. Mexico City, Mexico. August, 2016.

Kirkland, J.L. Cellular Senescence in Age- and Dietary-Induced Adipose Tissue Dysfunction and Diabetes. Lomonosov Moscow State University. Moscow, Russia. July, 2016.

Kirkland, J.L. Cellular Senescence in Age- and Dietary-Induced Adipose Tissue Dysfunction and Diabetes. University of Minnesota. Minneapolis, MN. June, 2016.

Kirkland, J.L. Cellular Senescence: The Path to Translation. The 2016 Harvard/ Paul F. Glenn Symposium on Aging. Boston, MA. June, 2016.

Kirkland, J.L. Translational Research in Aging. 24th Annual Training Course in Experimental Aging Research. Oklahoma City, OK. June, 2016.

Kirkland, J.L. Cellular Senescence and Inflammation. 24th Annual Training Course in Experimental Aging Research. Oklahoma City, OK. June, 2016.

Kirkland, J.L. Sex and Aging. 10th Anniversary OSSD Annual Meeting. Philadelphia, PA. May, 2016,

Kirkland, J.L. Geroscience Network: The Path to Translation. American Geriatrics Society Geroscience Interest Group Meeting. American Geriatrics Society Annual Meeting. Long Beach, CA. May, 2016.

Kirkland, J.L. Aging, Cellular Senescence, and Senolytics: The Path to Translation. MIA Summer School. Praia do Alvor, Portugal. April, 2016.

Kirkland, J.L. Senolytics: The Path to Translation. Claude D. Pepper Older Americans Independence Center Annual Meeting. Arlington, VA. April, 2016.

Kirkland, J.L. Aging, Cellular Senescence, and Senolytics: The Path to Translation. Grand Rounds. Boston University Geriatrics Section. Boston University. Boston, MA. April, 2016.

Kirkland, J.L. Aging, Cellular Senescence, and Senolytics: The Path to Translation. Visiting Professor. Concordia University. Montreal, Canada. March, 2016.

Kirkland, J.L. Interventions Targeting Cellular Senescence: The Path to Translation. Visiting Professor. University of Copenhagen. Denmark. February, 2016.

Kirkland, J.L. Graduate Student Opportunities at Mayo Clinic. UMCG Top Masters Program. University of Groningen. Netherlands. February, 2016.

Kirkland, J.L. Interventions Targeting Cellular Senescence: The Path to Clinical Translation. Theories of Aging: A Translational Perspectives Workshop. National Institute on Aging. Bethesda, MD. January, 2016.

Kirkland, J.L. Interventions Targeting Aging Processes: The Path to Clinical Translation. Cornell Club. New York, NY. January, 2016.

Kirkland, J.L. Interventions Targeting Fundamental Aging Processes: The Path to Translation. Institute on Aging, University of Pennsylvania. Philadelphia, PA. January, 2016.

Kirkland, J.L. Interventions Targeting Fundamental Aging Processes. Glenn Symposium. Einstein University. New York, NY. December, 2015.

Kirkland, J.L. Senolytics: Path to Translation. Leonard Hayflick Lecture. University of Alabama at Birmingham. Birmingham, AB. November, 2015.

Kirkland, J.L. Endpoints for Testing Senolytic Drugs. Using Pathology to Assess Translational Endpoints in preclinical Aging Studies. Orlando, FL. November, 2015.

Kirkland, J.L. Senolytics: The Path to Translation. Metabolism and Aging: From Molecular Physiology to Systems Biology. 2015 Barshop Symposium on Aging. Bandera, TX. October, 2015.

Kirkland, J.L. Cellular Senescence, Inflammation, and Age-Related Disease: The Path to Translation.

Health Research Alliance. Cleveland, OH. October, 2015.

Kirkland, J.L. Optimal Design of Initial Proof of Concept Trials to Test New Agents That Target Fundamental Aging Processes. R24 Retreat. Slaley Hall, Northumberland, UK. October, 2015.

Kirkland, J.L. Senolytics: The Path to Translation. US Food and Drug Administration Geroscience Seminar. Beltsville, MD. September, 2015.

Kirkland, J.L. Alleviation of Age-Related Disorders by Senolytic Drugs. Mayo Clinic-Karolinska Institutet 21st Annual Scientific Meeting. Stockholm, Sweden. September, 2015.

Kirkland, J.L. Perspectives on Resilience from the Biology Of Aging Workshop. NIA Workshop, "Measures of Physiologic Resiliencies and Vulnerabilities in Human Aging". National Institute on Aging. Bethesda, MD. August, 2015.

Kirkland, J.L. Senolytics: The Path to Translation. CCaTs Grand Rounds. Mayo Clinic. Rochester, MN. August, 2015.

Kirkland, J.L. The Role of Cellular Senescence in Disease: A Search for Interventions. Healthy Aging Summit. Department of Health and Human Services. Washington, DC. July, 2015.

Kirkland, J.L. Scenarios for Initial Clinical Trials of Drugs that Target Fundamental Aging Mechanisms. The Translational Science of Aging: From Functional Pathways to Interventions. Biology of Aging GRC. Newry, ME. July, 2015.

Kirkland, J.L., Tchkonia, T. Senolytics: The Path to Translation. ICSA. Santiago, Spain. July, 2015.

Kirkland, J.L. Cellular Aging and Chronic Disease: Translational and Therapeutic Opportunities. 14th Int. Conf. on Long Term Complications of Treatment of Children and Adolescents for Cancer. Washington, DC. June, 2015.

Kirkland, J.L. The Basic Biology of Aging: New Interventions and Therapeutic Opportunities. 3rd Ann. Conf. on Governance of Emerging Technologies. Scottsdale, AZ. May, 2015.

Kirkland, J.L. Geroscience Network: Biologists and Geriatricians Working Together. American Geriatrics Society. National Harbor, MD. May, 2015.

Kirkland, J.L. Geroscience Network. Geropathology Research Network Symposium. Seattle, WA. May, 2015.

Kirkland, J.L. Aging, Cellular Senescence, and Translation into Clinical Interventions. MRC-Arthritis Research UK. Nottingham, UK. April, 2015.

Kirkland, J.L. Aging, Cellular Senescence, and Translation into Clinical Interventions. University of Connecticut and Jackson Laboratory. Hartford, CT. April, 2015.

Kirkland, J.L. Strategies and Animal Models for Translating Interventions That Target Fundamental Aging Mechanisms into Clinical Interventions. Mouse AGE Meeting. Braga, Portugal. March, 2015.

Kirkland, J.L. Aging, Cellular Senescence, and Clinical Translation: Opportunities and Challenges.

Denham Harman Lecture. University of Nebraska Medical Center Grand Rounds. Omaha, NE. March, 2015.

Kirkland, J.L. Translating Drugs That Target Aging Mechanisms Into the Clinic: Opportunities and Challenges. UMCG Top Masters Students. University of Groningen. Groningen, Netherlands. March, 2015.

Kirkland, J.L. Can Drugs That Target Aging Mechanisms Be Translated Into the Clinic?: Opportunities and Challenges. UTMB Sealy Center on Aging Winter Series on Aging. Boulder, CO. February, 2015.

Kirkland, J.L. Aging, Chronic Disease, and Cellular Senescence: Therapeutic and Translational Opportunities. Interventions in Aging Conference. Cancun, Mexico. February, 2015.

Kirkland, J.L. Aging, Adipose Tissue Inflammation, and Cellular Senescence. GSA Annual Meeting. Washington, DC. November, 2014.

Kirkland, J.L. Agents That Target Fundamental Aging Mechanisms: Translational Opportunities and Challenges. 5th Annual Robert and Arlene Kogod Center on Aging Conference. Mayo Clinic. October, 2014.

Kirkland, J.L. Targeting Aging Mechanisms to Delay, Prevent, or Alleviate Chronic Diseases and Disabilities. House of Lords. UK Parliament. October, 2014.

Kirkland, J.L. Aging, fat tissue, and cellular senescence. University of Oklahoma Health Science Center. Oklahoma City, OK. October, 2014.

Kirkland, J.L. Inflammation, cellular senescence, and aging. Healthy Aging: From Bench to Bedside. Stress und Altern. DGGG. Halle, Germany. September, 2014.

Kirkland, J.L. Translating advances from the basic biology of aging into clinical application: Opportunities and challenges. MipTec: Practical Applications of Aging Research for Drug Discovery. Basel, Switzerland. September, 2014.

Kirkland, J.L. Cellular senescence: Implications for multiple age-related disabilities and diseases. Symposium on Neurobiology and Neuroendocrinology of Aging. Bregenz, Austria. July, 2014.

Kirkland, J.L. Aging, fat tissue, and cellular senescence. CHU Rangueil. Toulouse, France. July, 2014.

Kirkland, J.L. Cellular senescence and aging phenotypes. Clinical Pathological Conference, St. Jude Children's Research Hospital. Memphis, TN. July, 2014.

Kirkland, J.L. Animal models of aging, chronic disease, resilience, healthspan, and lifespan: Advantages and problems. Paul F. Glenn/AFAR Workshop on the Biology of Aging. Santa Barbara, CA. June, 2014.

Xu, M., Tchkonia, T., Kirkland, J.L. A novel tool for uncovering how senescent cells cause age-related dysfunction. The 27th Annual AFAR Grantee Conference. The Paul F. Glenn/AFAR Conference on the Biology of Aging. Santa Barbara, CA. June, 2014.

Kirkland, J.L. Aging, chronic disease, and cellular senescence: Therapeutic opportunities and challenges. CHA University, Bundang Medical Center. Seoul, Korea. May, 2014.

Kirkland, J.L. Fat tissue and cellular senescence. Highlights of ENDO. Seoul, Korea. May, 2014.

Kirkland, J.L. MicroRNA, aging, and adipose tissue function. Translational Research Symposium on RNA Signaling in Fat Cells. Seoul, Korea. May, 2014.

Kirkland, J.L. Cellular senescence, fat cell progenitors, and aging. Therapeutic Approaches for Extending Healthspan. Scripps, FL. May, 2014.

Kirkland, J.L. Developing therapeutics for aging: Transformative advances and challenges. Therapeutic Approaches for Extending Healthspan: The Next 10 Years. Scripps, FL. May, 2014.

Kirkland, J.L. Obesity, weight loss, diabetes, and cellular senescence in seniors: Opportunities for intervention. NIH Obesity Research Task Force. Bethesda, MD. April, 2014.

Kirkland, J.L. Aging research: Transformative advances and challenges. Transatlantic Ageing Research - Collaboration on Infrastructure Support. EU Health Directorates. Brussels, Belgium. April, 2014.

Kirkland, J.L. Aging, adipose tissue, diabetes, and cellular senescence. University of Arizona. Tucson, AZ. April, 2014.

Kirkland, J.L. Translational aging research: Challenges and opportunities for developing interventions. Integrative Physiology Seminar. University of Colorado. Boulder, CO. April, 2014.

Kirkland, J.L. Aging, diabetes, and cellular senescence. Grand Rounds. Southern Illinois University. Springfield, IL. March, 2014.

Kirkland, J.L. Inflammation and cellular senescence: Potential contribution to chronic diseases and disabilities with aging. Geroscience – Aging Biology as the Common Risk Factor for Chronic Diseases. GSA Annual Scientific Meeting. New Orleans, LA. November, 2013.

Kirkland, J.L. Challenges and opportunities for developing interventions. Translating Recent, Transformational Advances in the Basic Biology of Aging into Clinical Application: Opportunities and Challenges. GSA Annual Scientific Meeting. New Orleans, LA. November, 2013.

Kirkland, J.L. Cellular senescence and adipose tissue. Adipose Tissue Biology: Targeting the Life Cycle. The Obesity Society. Atlanta, GA. November, 2013.

Kirkland, J.L. How do local and systemic sources of chronic inflammation contribute to chronic disease processes? Advances in Geroscience: Impact on Healthspan and Chronic Diseases. National Institutes of Health. Washington, DC. October, 2013.

Kirkland, J.L. Roundtable on Tackling Diseases of Aging: Why Research Collaboration Matters. Senate Special Committee on Aging. United States Senate. Washington, DC. October, 2013.

Kirkland, J.L. How do local and systemic sources of chronic inflammation contribute to chronic disease processes? Advances in Geroscience: Impact on Healthspan and Chronic Diseases, National Institutes of Health. Bethesda, MD. October, 2013.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Cellular Senescence. Institute of Molecular Biology

and Biotechnology, Medical School, University of Crete. Iraklion, Greece. October, 2013.

Kirkland, J.L. Cellular Senescence: Causes, Mechanisms, and Consequences. American Society for Bone and Mineral Research Working Group on Skeletal Aging. Baltimore, MD. October, 2013.

Kirkland, J.L. Aging and Adipose Tissue Cellular Senescence. Gordon Research Conference: Biology of Aging. Barga, Italy. August, 2013.

Kirkland, J.L. Fat Tissue and Cellular Senescence. Endocrine Society. San Francisco, CA. June, 2013.

Kirkland, J.L. Translational Research. Summer Training Course in Experimental Aging Research. Barshop Institute for Experimental Aging Research. San Antonio, TX. June, 2013.

Kirkland, J.L. Cellular Senescence and Inflammation. Summer Training Course in Experimental Aging Research. Barshop Institute for Experimental Aging Research. San Antonio, TX. June, 2013.

Kirkland, J.L. Aging, Adipose Tissue Inflammation, and Cellular Senescence. Paul F. Glenn Symposium on the Biology of Aging. Santa Barbara, CA. June, 2013.

Kirkland, J.L. Translating Recent Advances in the Biology of Aging into Clinical Application: Opportunities and Challenges. Paul F. Glenn Symposium on the Biology of Aging. Santa Barbara, CA. June, 2013.

Kirkland, J.L. Cellular Senescence: Contributions to Age-Related Disease. National Institute on Aging. Bethesda, MD. May, 2013.

Kirkland, J.L. Aging, Adipose Tissue Inflammation, and Cellular Senescence. University of Washington. Seattle, WA. April, 2013.

Kirkland, J.L. Translating Recent Advances in the Biology of Aging into Clinical Application: Opportunities and Challenges. Grand Rounds. Mayo Clinic. February, 2013.

Kirkland, J.L. Cellular Senescence and Adipose Tissue. Keystone Symposium on Adipose Tissue Biology Keystone, CO. January, 2013.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Cellular Senescence. Genetic Mechanisms of Function Aging, Stress, and Immunity Symposium. Sanford Burnham Medical Research Institute. La Jolla, CA. January, 2013.

Kirkland, J.L. How Should Geriatrics Specialists be Trained in Chile? Visiting Professor, University of Chile and Government of Chile. Santiago, Chile. January, 2013.

Kirkland, J.L. Translating Recent Advances in the Biology of Aging into Clinical Application. Visiting Professor. University of Chile and Government of Chile. Santiago, Chile. January 2013.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Cellular Senescence. Division of Gastroenterology. Mayo Clinic. Rochester, MN. January, 2013.

Kirkland, J.L. Aging Mechanisms. Visiting Professor. University of Crete. Heraklion, Greece. November, 2012.

Kirkland, J.L. Aging, Fat Tissue, Inflammation, and Cellular Senescence. Invited Speaker. Gerontological Society of America Annual Meeting. San Diego, CA. November, 2012.

Kirkland, J.L. Aging, Fat Tissue, and Cellular Senescence. Mayo Clinic Center for Translational Science Activities Grand Rounds. Rochester, MN. November, 2012.

Kirkland, J.L. Aging Mechanisms. Visiting Professor. Tbilisi State University. Tbilisi, Georgia. October, 2012.

Kirkland, J.L. Inflammation. Barshop Institute San Antonio Nathan Shock Conference. San Antonio, TX. October, 2012.

Kirkland, J.L. Aging, Fat Tissue, and Cellular Senescence. 2012 William R. Hazzard Translational Research in Aging Symposium. Wake Forest University. Winston-Salem, NC. October, 2012.

Xu, M., Zhu, Y., Pirtskhalava, T., Giorgadze, N., Baker, D.J., Jensen, M.D., van Deursen, J., Tchkonia, T., Kirkland, J.L. Senescent Cells Compromise Fat Tissue Function. International Federation for Adipose Therapeutics and Science. Quebec, Canada. October, 2012.

Kirkland, J.L. Eliminating Senescent Cells to Mitigate Effects of Aging and Obesity. European Association for the Study of Diabetes. Berlin, Germany. October, 2012.

Kirkland, J.L. Aging and Cellular Senescence: Implications for Regenerative Medicine. Mayo Clinic Karolinska Institutet Research Meeting. Rochester, MN. September, 2012.

Kirkland, J.L. Biology of Aging Update: Aging, Fat Tissue Inflammation, and Fat Tissue Cellular Senescence. Geriatrics Section Education Conference. Boston University, MA. September, 2012.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Fat Tissue Cellular Senescence. The Role of Inflammation in Age-Related Disease. NIH Conference. Bethesda, MD. September, 2012.

Kirkland, J.L. Aging, Obesity, and Fat Tissue Cellular Senescence. Invited lecture. Department of Chemistry. University of Minnesota. September, 2012.

Kirkland, J.L. Aging, Cellular Senescence, and Chronic Inflammation: A Therapeutic Opportunity? NIA Workshop on Effects of Modulating Inflammation. NIH Conference. Washington, DC. July, 2012.

Kirkland, J.L. Translating Recent Advances in the Biology of Aging into Clinical Interventions: Opportunities and Challenges. Mayo Department of Physical Medicine and Rehabilitation Rounds. Rochester, MN. July, 2012.

Kirkland, J.L. Translating Recent Advances in the Biology of Cellular Senescence into Clinical Interventions: Opportunities and Challenges. Cancer Alliance Biomarkers Symposium. Chicago, IL. June, 2012.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Cellular Senescence. Invited lecture. Endocrine Society. Houston, TX. June, 2012.

Kirkland, J.L. Aging, Fat Tissue Inflammation, and Cellular Senescence. Mayo Division of Rheumatology

Rounds. Rochester, MN. June, 2012.

Kirkland, J.L. Targeting Aging to Delay Multiple Chronic Diseases: A New Frontier. Invited Lecture. Novartis Research. Boston, MA. May, 2012.

Kirkland, J.L. Aging, Fat Tissue, and Cellular Senescence. Center for Clinical and Translational Science Distinguished Lecture Series. University of Illinois. Chicago, IL. April, 2012.

Kirkland, J.L. Aging and Disease Research: A Multi-Pronged Approach. United States Senate Select Committee on Aging. Washington, DC. March, 2012.

Kirkland, J.L. Targeting Aging to Delay Multiple Chronic Diseases: A New Frontier. Invited Keynote Speaker. Inaugural Meeting of the Cross-National Institutes of Health Geroscience Interest Group, NIH. Bethesda, MD. March, 2012.

Kirkland, J.L. Aging, Fat Tissue, and Cellular Senescence. Visiting Professor. Jena University. Jena, Germany. March, 2012.

Kirkland, J.L. Aging, Fat Tissue, and Cellular Senescence. Visiting Professor, Invited Seminar. Clinical Translational Aging Research Seminars. University of Florida. Gainesville, FL. February, 2012.

Kirkland, J.L. Aging, Fat Tissue, Frailty, and Cellular Senescence. Invited Seminar. Baycrest Hospital. Toronto, Canada. November, 2011.

Kirkland, J.L. Targeting the Fat Tissue Senescent Secretory Proteome. Alliance for Healthy Aging Symposium on Frailty and Healthspan. Groningen, Netherlands. October, 2011.

Kirkland, J.L. Fat Tissue, Aging, and Cellular Senescence. Keynote Lecture. 2011 Nathan Shock Center Conference on Aging. San Antonio, TX. October, 2011.

Kirkland, J.L., Zhu, Y., Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Bergen, H.R., Li, P.W., Jensen, M.D. Cellular senescence and an inflammatory senescence-associated secretory phenotype in human preadipocytes. The Obesity Society. Orlando, FL. October, 2011.

Kirkland, J.L. Fat Tissue, Nutrition, Aging, Chronic Inflammation, and Cellular Senescence. Institut Merieux. Annecy, France. September, 2011.

Kirkland, J.L. Aging, Adipose Tissue, and Cellular Senescence. SENS. Cambridge, UK. September, 2011.

Kirkland, J.L. Human Obesity and Aging. American Diabetes Association. San Diego, CA. June, 2011.

Kirkland, J.L. Low Hanging Fruit: Early Opportunities to Translate Advances from the Basic Biology of Aging into Clinical Application. American Aging Association. Raleigh, NC. June, 2011.

Zhu, Y., Tchkonia, T., Giorgadze, N., Liang, G., Li, P., Holtz-Heppelmann, C.J., Bergen, H.R., Jensen, M.D., Bouloumié, A., Kirkland, J.L. Inflammation and the fat depot-specific secretome of human fat cell progenitors. European Congress on Obesity, Istanbul, Turkey. May, 2011.

Kirkland, J.L. Fat Tissue, Aging, and Cellular Senescence. Cell Symposium: Metabolism & Aging. Hyannis, MA. March, 2011.

Kirkland, J.L. Are Different Fat Depots Distinct Mini-Organs? Mechanisms and consequences. Visiting Professor. University of Michigan. Ann Arbor, MI. March, 2011.

Kirkland, J.L. Aging, Senescence, and Fat Tissue Inflammation: Therapeutic Opportunities. McGowan Institute Annual Scientific Retreat 2011. Pittsburgh, PA. March, 2011.

Kirkland, J.L. Senescence and Inflammation in Fat: Implications for Regenerative Medicine. Frontiers in Biomedical Research: Regenerative Medicine. Karolinska Institute. Stockholm, Sweden. October, 2010.

Kirkland, J.L. Fat Tissue Aging, Cellular Senescence, and IGF-1. Visiting Professor. University of Crete. Greece. October, 2010.

Kirkland, J.L., Fat and Aging. First Annual International Diabetes and Obesity Forum. Athens. Greece. October, 2010.

Kirkland, J.L. Aging, Obesity, and Fat Tissue Cellular Senescence. Minnesota Obesity Research Center. Minneapolis, MN. October, 2010.

Kirkland, J.L., Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Bartke, A., Masternak, M., Miller, R., Kopchick, J., Berryman, D., List, E., Ikeno, Y., Adamo, M., Boney, C., Cleveland-Donovan, K. Age-Related Fat Redistribution and Cellular Senescence Are Delayed in GH/IGF-1 Deficient Mice. Obesity Society Annual Meeting. San Diego, CA. October, 2010.

Kirkland, J.L. Vice-Chair. Gordon research Conference on the Biology of Aging. Les Diablerets, Switzerland. August, 2010.

Tchkonia, T., Pirtskhalava, T., Thomou, T., Giorgadze, N., von Zglinicki, T., Kirkland, J.L. The Inflammatory and Anti-Adipogenic Effects of the Senescent Preadipocytes that Accumulate due to Aging and TNFα Exposure Are Blocked by Inhibiting JAK-2. International Congress on Obesity. Stockholm. Sweden. July, 2010.

Kirkland, J.L. Chair. Robert and Arlene Kogod Center on Aging Annual Symposium. Redwing, MN. June, 2010.

Kirkland, J.L. Scientists and Doctors: Lost in Translation. American Aging Association Annual Meeting. Portland, OR. June, 2010.

Kirkland, J.L. The Biology of Aging. Boston University Summer Institute on Aging. Boston, MA. May, 2010.

Kirkland, J.L. New Aspects of Aging: Relations Between Aging and Cancer. North Central Cancer Treatment Group Annual Meeting. Rochester, MN. May, 2010.

Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Thomou, T., Bouloumié, A., von Zglinicki, T., Kirkland, J.L. Cellular Senescence and Inflammation in Obesity. Obesity Society Annual Meeting. Washington, DC. October, 2009.

Kirkland, J.L. Aging, Fat Depot Origin, Fat Cell Progenitor Senescence, and Inflammation. IFATS Annual Meeting. Daegu, Korea. October, 2009.

Kirkland, J.L. Does Aging Make Fat Go MAD? Karolinska Institutet. Stockholm, Sweden. October, 2009.

Kirkland, J.L. Does Aging Make Fat Go MAD? American Aging Association Annual Meeting. Phoenix, AZ. June, 2009.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. Groningen University. Holland. May, 2009.

Kirkland, J.L. Changes in fat with aging. Invited Symposium. American Geriatrics Society Annual meeting. Chicago, IL. May, 2009.

Tchkonia, T., Lenburg, M., Giorgadze, N., Thomou, T., Gadua, M., Kirkland, J.L. Different thiazolidinediones elicit distinct responses in human preadipocytes. 3rd International Congress on Prediabetes and the Metabolic Syndrome. Nice, France. April, 2009.

Kirkland, J.L. Aging and Fat Tissue. Rochester District Dietetic Association. Rochester, MN. March, 2009.

Kirkland, J.L. Research in Aging and Initiatives to Preserve Independence with Increasing Age. Geriatric Care Conference. Rochester Civic Center. Rochester, MN. March, 2009.

Kirkland, J.L. Mayo Clinic Robert and Arlene Kogod Center on Aging. Scientists in Aging Research. University of Minnesota. Minneapolis, MN. February, 2009.

Kirkland, J.L. Does Aging Make Fat Go MAD? CTSA Grand Rounds. Mayo Clinic. February, 2009.

Kirkland, J.L. Mayo Clinic Robert and Arlene Kogod Center on Aging. Department of Development Grand Rounds. Mayo Clinic. February, 2009.

Kirkland, J.L. Do Aging and Obesity Make Fat Go MAD? Association Francaise D'Etude et de Recherche sur l'Obesite. Toulouse, France. January, 2009.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. UCLA. Los Angeles, CA. January, 2009.

Kirkland, J.L. The Latest Research on Successful Aging. California Club. Los Angeles, CA. November, 2008.

Kirkland, J.L. The Role of Body Fat in Aging and Dietary Restriction. Nathan Shock Aging Center Conference on Aging. National Institute on Aging. Bandera, TX. October, 2008.

Kirkland, J.L. Fat and Aging. The Obesity Society Annual Scientific Meeting. Phoenix, AZ. October, 2008.

Kirkland, J.L. Are Different Fat Depots Distinct Mini-Organs? 13th International Congress on Hormonal Steroids and Hormones and Cancer. Quebec City, Canada. September, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Scientists in Aging Seminar. University of Minnesota. Minneapolis, MN. September, 2008.

Kirkland, J.L. New Perspectives in Aging. The Doctors Mayo Society. Mayo Clinic. Rochester, MN. September, 2008.

Kirkland, J.L. Aging and Fat Tissue Function. Ellison Foundation Course on Aging. Woods Hole, MA. August, 2008.

Kirkland, J.L. The Biology of Aging. Hartford Foundation Center of Excellence Lecture. Boston University. Boston, MA. August, 2008.

Kirkland, J.L. Aging and Fat Tissue Function. Visiting Professor. University of Michigan Ann Arbor, MI. July, 2008.

Kirkland, J.L. The Biology of Aging. Summer Institute in Geriatric Medicine. Boston University. Boston, MA. June, 2008.

Kirkland, J.L. Fat goes MAD with Aging. Does the Brain? 2nd International Genome Dynamics in Neuroscience Conference. Asilomar, CA. June, 2008.

Kirkland, J.L. Initiatives in Aging at the Mayo Clinic. Presentation for the Residents of Charter House Retirement Home. Rochester, MN. June, 2008.

Kirkland, J.L., Tchkonia, T., Pirtskhalava, T., Giorgadze, N., Gagua, M., Karagiannides, I., Cleveland-Donovan, K., Conover, C., Boney, B. Preadipocyte IGF-1 signaling, bioavailability, and responsiveness vary among fat depots. 16th European Congress on Obesity. Geneva, Switzerland. May, 2008.

Kirkland, J.L. Adipose Tissue and Aging. Johnson and Johnson. Skillman, NJ. March, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Clinical Biochemistry and Immunology Seminar. Mayo Clinic. Rochester, MN. March, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor, Indiana University. Indianapolis, IN. February, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Medical Grand Rounds, St. Joseph's Health Centre, University of Toronto. Toronto, Canada. February, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor, University of Calgary. Calgary, Canada. January, 2008.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor, Barshop Institute for Aging and Longevity Studies, University of Texas at San Antonio. San Antonio, TX. January, 2008.

Kirkland, J.L. Aging and Fat Tissue Function. Research Rounds, Gastroenterology Division, Mayo Clinic. Rochester, MN. January, 2008.

Kirkland, J.L. Different Fat Depots Are Separate Mini-Organs: Thiazolidinediones and Human Preadipocyte Function. Takeda Pharmaceuticals. Chicago, IL. December, 2007.

Kirkland, J.L., Tchkonia, T., Cleveland-Donovan, K., Giorgadze, N., Gagua, M., Karagiannides, I., Pothoulakis, C., Conover, C., Boney, C. Regional variation in bioavailability and responsiveness to IGF-1 in human preadipocytes. NAASO Annual Meeting. New Orleans, LA. October, 2007.

Kirkland, J.L. Aging and Adipose Stem Cells. Special Lecture. International Federation of Adipose Therapeutics and Science Annual Meeting. Indianapolis, IN. October, 2007.

Kirkland, J.L. Does Aging Make Fat Go MAD? Keynote Speaker. Quebec Network on Aging Research. Sherbrooke, Quebec, Canada. August, 2007.

Kirkland, J.L. Adipogenesis and Aging: Does Aging Make Fat Go MAD? Visiting Professor. McGill University. Montreal, Canada. June, 2007.

Kirkland, J.L., Cartwright, M., Tchkonia, T., Lenburg, M., Schlauch, K., Pirtskhalava, T., Cartwright, A., Lopez, M., Frampton, G. Aging, fat depot origin, and preadipocyte expression profiles: setting the stage for fat tissue dysfunction. European Congress on Obesity. Budapest, Hungary. April, 2007.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. Pennington Biomedical Research Center, Louisiana State University. Baton Rouge, LA. April, 2007.

Kirkland, J.L. An Elephant in the Room Has Been Ignored: IGF-1 Pathways and Fat Tissue Function. Insulin-Like Growth Factors in Physiology and Disease. Keynote Speaker. Gordon Conference. Ventura, CA. March, 2007.

Kirkland, J.L. Aging, Adipogenesis, Stress Response Pathways, and Caloric Excess or Restriction: Potential Mechanisms. NIA/NIH. Bethesda, MD. December, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. Albert Einstein Medical School. New York, NY. December, 2006.

Thomou, T., Tchkonia, T., Giorgadze, N., Lash, T., Gagua, M., Karagiannides, I., Pothoulakis, C., Kirkland, J.L. Homeobox gene expression profiles are distinct in human preadipocytes isolated from different fat depots. NAASO Annual Meeting. Boston, MA. October, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Invited Speaker. Nathan Shock Conference. San Antonio, TX. October, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. University of Connecticut. Farmington, CT. September, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? American Society for Bone and Mineral Research Annual Meeting. Invited Speaker. Philadelphia, PA. September, 2006.

Kirkland, J.L., Tchkonia, T., Lenburg, M., Thomou, T., Giorgadze, N., Sabban, A., Pirtskhalava, T., Cartwright, A., Cartwright, M., Gerry, N., Forse, R.A., Tchoukalova, Y., Jensen, M., Pothoulakis, C. Identification of Depot-Specific Human Fat Cell Progenitors Through Distinct Expression Patterns, Developmental Gene Profiles, Morphology, and Function. International Congress on Obesity. Sydney, Australia. September, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Endocrine Society Annual Meeting. Boston, MA. June, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Medical Grand Rounds. St. Joseph's Health Centre. Toronto, Canada. April, 2006.

Kirkland, J.L. Aging: Body Composition and its Regulation. NIA/NIH. Bethesda, MD. March, 2006.

Kirkland, J.L. Aging and Regional Variation in Preadipocyte Function. University of Louisville. Louisville, KY. March, 2006.

Kirkland, J.L. Does Aging Make Fat Go MAD? Visiting Professor. Creighton University. Omaha, NE. February, 2006.

Kirkland, J.L. Regional Variation in Preadipocyte Function: Are Different Fat Depots Separate Mini-Organs? Invited Speaker. Brown University. Providence, RI. January, 2006.

Kirkland, J.L., Tchkonia, T., Lenburg, M., Prabhu, V., Giorgadze, N., Pirtskhalava, T., Thomou, T., Forse, A., Pothoulakis, C., Becker, K. Are Different Fat Depots Separate Mini-Organs? NAASO Annual Meeting. Vancouver, Canada. October, 2005.

Kirkland, J.L. Identification of distinct expression profiles during adipogenesis in human preadipocytes isolated from different fat depots. 14th European Congress on Obesity. Athens. June, 2005.

Kirkland, J.L. Preadipocytes and Aging: Questions About Aging and Progenitor Function. National Institute on Aging. Bethesda, MD. March, 2005.

Kirkland, J.L. Are Different Fat Depots Separate Mini-Organs? Visiting Professor. University of Washington, Seattle, WA. January, 2005.

Kirkland, J. L. Inhibitors of Adipogenesis, Stress, and Lipotoxicity: Enough to Drive Aging Preadipocytes MAD? Visiting Professor. University of Washington, Seattle, WA. January, 2005.

Kirkland, J. L. Regional Variation in Fat Tissue Function: Are Different Fat Depots Separate Mini-Organs? Invited Speaker. Harvard University. December, 2004.

Kirkland, J. L. Aging Results in Paradoxical Susceptibility of Fat Cell Progenitors to Lipotoxicity. NAASO Annual Meeting. Las Vegas, NV. November, 2004.

Kirkland, J. L. Imaging Preadipocytes: Are Different Fat Depots Separate Mini-Organs? NAASO Annual Meeting. Las Vegas, NV. November, 2004.

Kirkland, J. L. Adipogenesis Inhibitors, Stress, and Lipotoxicity: Enough to Make Aging Preadipocytes go MAD. NIA/NIH. Bethesda, MD. November, 2004.

Kirkland, J. L. Regional Variation in Fat Tissue Function: Are Different Fat Depots Separate Mini-Organs? Visiting Professor. Moorehouse Medical School, Atlanta, GA. October, 2004.

Kirkland, J. L. Preadipocytes: Regional Differences and Aging. Invited Speaker. IFATS. Pittsburgh, PA. October, 2004.

Kirkland, J. L. Are Different Fat Depots Separate Mini-Organs? Boston Obesity/Nutrition Research Center. Boston, MA. June, 2004.

Kirkland, J. L. Are Different Fat Depots Separate Mini-Organs? Invited Speaker. American Diabetes Association Annual Meeting. Orlando, FL. June 5, 2004.

Kirkland, J. L., Tchkonia, T., Frampton, G., Lenburg, M., Giorgadze, N., Sabban, A., Pirtskhalava, T., Cartwright, M., Gerry, N., Forse R. A., Thomou, T., Gileadi, O. Fat Cell Progenitors From Different Human Fat Depots Are Distinct: Morphological and Gene Expression Profiles. 13th European Congress on Obesity. Prague, Czech Republic. May, 2004.

Kirkland, J. L. The Battle of the Bulge: Aging, Depot Origin, and Fat Cell Progenitor Function. A New Paradigm for Aging Research: When Do the Biological Changes of Aging Begin? National Institutes of Health. Bethesda, MD. May,2004.

Kirkland, J. L. Morphological And Gene Expression Profiles of Human Preadipocytes From Different Fat Depots Are Distinct. Keystone Conference. Banff, Alberta, Canada. March, 2004.

Kirkland, J. L. Does Dysdifferentiation of Progenitor Cells Contribute to Frailty? Research Agenda for Frailty in Older Adults: Towards a Better Understanding of Physiology and Etiology. American Geriatrics Society. Baltimore, MD. January, 2004.

Kirkland, J. L. Adipogenesis and Aging: Does Aging Make Fat Go MAD? Invited Speaker. Gerontological Society of America Annual Meeting. San Diego, CA. November, 2003.

Kirkland, J. L., Tchkonia, T., Tchoukalova, Y., Giorgadze, N., Pirtskhalava, T., Karagiannides, I., Forse, A., Koo, A., Stevenson, M., Chinnappan, D., Peterson, C., Jensen, M. Abundance of Two Human Preadipocyte Subpopulations with Distinct Capacities for Replication, Adipogenesis, and Apoptosis Varies among Fat Depots. NAASO Annual Meeting. Ft. Lauderdale, FL. October,2003.

Kirkland, J. L. The Biology of Senescence. Harvard Biology of Aging Series. Boston, MA. September, 2003.

Kirkland, J. L., Tchkonia, T., Tchoukalova, Y., Giorgadze, N., Pirtskhalava, T, Karagiannides, I., Forse, R. A., Koo, A., Stevenson, M., Jensen, M. Human preadipocyte subtypes with different capacities for replication and differentiation vary among depots. 12th European Congress on Obesity. Helsinki, Finland. May, 2003.

Kirkland, J. L. Aging and adipocytes. Invited Speaker. International Symposium on Novel Therapies for Fat Tissue and Metabolism. Mallorca, Spain. May, 2003.

Kirkland, J. L. Adipose tissue progenitor cells. Stem Cells and Aging, National Institute on Aging Workshop. Bethesda, MD. May, 2003.

Kirkland, J. L., Tchkonia, T. T., Karagiannides, I., Pirtskhalava, T., Shpilman, A., Timchenko, N. Increased CUG triplet binding protein activity resulting in C/EBPβ-LIP production contributes to impaired adipogenesis with aging. 9th International Congress on Obesity. Sao Paulo, Brazil. August, 2002.

Tchkonia, T.T., Giorgadze, N., DePonte, M., Forse, R. A., Kirkland, J. L. Telomere shortening inhibits

differentiation of human preadipocytes into fat cells. 84th Ann. Endo Soc. Meeting. San Francisco. June, 2002.

Kirkland, J. L., Tchkonia, T. T., Karagiannides, I., Pirtskhalava, T., Hadzopoulou-Cladaras, M., Dobson, D.E., Timchenko, N. Adipogenesis and aging. 168th Annual Meeting of the American Association for the Advancement of Science. Boston. February, 2002.

Tchkonia, T., Giorgadze, N., Pirtskhalava, T., Tchoukalova, Y., Forse, R. A., DePonte, M., Stevenson, M., Guo, W., Karagiannides, I., Jensen, M. D., Lash, T., Waloga, G, Kirkland, J. L. Molecular and cellular mechanisms of effects of fat depot origin on human preadipocyte differentiation. NAASO Annual Meeting. Quebec City. October, 2001.

Tchkonia, T., Karagiannides, I., Hadzopoulou-Cladaras, M., Dobson, D. E., Farmer, S. R., Sierra, A., Kirkland, J. L. Decreased PPARγ expression results in impaired adipogenesis with aging. NAASO Annual Meeting. Quebec City. October, 2001.

Tchkonia, T., DePonte, M., Forse, R. A., Pirtskhalava, T., Kirkland, J. L. Telomerase expression enhances differentiation of passaged human preadipocytes. NAASO Annual Meeting. Quebec City. October, 2001.

Tchkonia, T., Wise, B., Chan, G., Karagiannides, I., Kirkland, J. L. Aging, CHOP expression, and preadipocyte differentiation. NAASO Annual Meeting. Quebec City. October, 2001.

Han, J. R., Farmer, S. R., Corkey, B. E., Kirkland, J. L., Guo, W. Medium chain fatty acids reduce lipid storage in adipocytes by down-regulating the expression of adipogenic genes. NAASO Annual Meeting. Quebec City. October, 2001.

Kirkland, J. L. Regulation of adipocyte differentiation. Advance in obesity: from the environment to the gene. Invited Speaker. FASEB Research Conference. Snowmass, Colorado. August, 2001.

Kirkland, J. L. Adipogenesis and aging. Invited Speaker. Gordon Research Conference: Biology of Aging. Oxford, United Kingdom. July, 2001.