

# SUPPLEMENTARY TABLE

Table S1 | Summary data from all the manuscripts included in the review

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/storage info	Statistical information present	Cohort	Age/Gender information given	Control classification
1	Endothelial nitric oxide synthase in bicuspid aortic valve disease	The Annals of Thoracic Surgery 2007;83(4):1290-4	Surgery	Aicher, Diana; Urbich, Carmen; Zeiher, Andreas; Dimmeler, Stefanie; Schäfers, Hans-Joachim	Biochemistry	✓	✓	Surgery	✓	2
2	A pilot study of scanning acoustic microscopy as a tool for measuring arterial stiffness in aortic biopsies	Artery Research 2016;13:1-5	Peripheral vascular disease	Akhtar, Riaz; Cruickshank, J. Kennedy; Zhao, Xuegen; Derby, Brian; Weber, Thomas	Imaging		✓	Surgery	✓	3
3	Role of macrophage and smooth muscle cell apoptosis in association with oxidized low-density lipoprotein in the atherosclerotic development	Modern Pathology 2005;18(3): 365-73	Pathology	Akishima, Y.; Akasaka, Y.; Ishikawa, Y.; Lijun, Z.; Kiguchi, H.; Ito, K.; Itabe, H.; Ishii, T.	Biochemistry/ Imaging	✓	✓	Autopsy	✓	1
4	Obtaining the biomechanical behavior of ascending aortic aneurysm via the use of novel speckle tracking echocardiography	The Journal of Thoracic and Cardiovascular Surgery 2017;153(4):781-8	Surgery	Alreshidan, Mohammed; Shahmansouri, Nastaran; Chung, Jennifer; Lash, Vynka; Emmott, Alexander; Leask, Richard L.; Lachapelle, Kevin	Biomechanical/ Imaging	✓	✓	Surgery	✓	3
5	Comparison of mechanical properties of human ascending aorta and aortic sinuses	The Annals of Thoracic Surgery 2012;93(1):87-94	Surgery	Azadani, Ali N.; Chitsaz, Sam; Matthews, Peter B.; Jaussaud, Nicolas; Leung, James; Tsimman, Tonia; Ge, Liang; Tseng, Elaine E.	Biomechanical	✓	✓	Transplant	✓	2
6	Localization of apolipoprotein E in normal and atherosclerotic human aorta	Atherosclerosis 1990;85(2-3): 239-47	Peripheral vascular disease	Babaev, Vladimir R.; Dergunov, Alexander D.; Chenchik, Alexander A.; Tararak, Edvard M.; Yanushevskaya, Elena V.; Trakht, Ilya N.; Sorg, Clemens; Smirnov, Vladimir N.	Imaging	✓		Autopsy	✓	1
7	Mutations in a TGF-β ligand, TGFB3, cause syndromic aortic aneurysms and dissections	Journal of the American College of Cardiology 2015;65(13): 1324-36	Cardiac and cardio-vascular systems	Bertoli-Avella, Aida M.; Gillis, Elisabeth; Moritsaki, Hiroko; Verhagen, Judith M.A.; de Graaf, Bianca M.; van de Beek, Gerarda; Gallo, Elena; Kruithof et al.	Biochemistry/ Imaging				✓	4
8	Classification and functional characterization of vasa vasorum-associated perivascular progenitor cells in human aorta	Stem Cell Reports 2017;9(1): 292-303	Cell and tissue engineering	Billaud, Marie; Donnenberg, Vera S.; Ellis, Bradley W.; Meyer, E. Michael; Donnenberg, Albert D.; Hill, Jennifer C.; Richards, Tara D.; Gleason, Thomas G.; Phillippi, Julie A.	Imaging	✓	✓	Surgery	✓	3
9	Tissue diffusion and retention of metalloproteinases in ascending aortic aneurysms and dissections	Human Pathology 2009;40(3): 306-13	Pathology	Borges, Luciano F.; Fouat, Ziad; Leclercq, Anne; Al Haj Zen, Ayman; Jondeau, Guillaume; Franc, Brigitte; Philippe, Monique; Meilhac, Olivier; Gutierrez, Paulo S.; Michel, Jean-Baptiste	Biochemistry/ Imaging		✓	Surgery/ Transplant	✓	1

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**Table S1** Summary data from all the manuscripts included in the review—Continued

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/ storage info	Statistical information present	Cohort	Age/ Gender information given	Control classification
10	Increased expression of urotensin II and its cognate receptor GPR14 in atherosclerotic lesions of the human aorta	Atherosclerosis 2004;176(1):117–23	Peripheral vascular disease	Bousette, Nicolas; Patel, Lisa; Douglas, Stephen A.; Ohlstein, Eliot H.; Giaid, Adel	Biochemistry/ Imaging	✓	✓	Surgery/ Autopsy	✓	1
11	Limitations of the lipid state hypothesis for atherosclerosis are revealed by X-ray diffraction measurements	Atherosclerosis 1989;77(1):43–51	Peripheral vascular disease	Burks, Christian; Hong, Steven; Ho, Michael; Engelman, Donald M.	Biochemistry	✓	✓	Autopsy		1
12	A pilot study on low-density lipoprotein receptor-related protein-1 in Chinese patients with abdominal aortic aneurysm	European Journal of Vascular and Endovascular Surgery 2013;46(5):549–56	Surgery	Chan, C.Y.T.; Chan, Y.C.; Cheuk, B.L.; Cheng, S.W.	Biochemistry/ Imaging	✓	✓	Surgery/ Transplant	✓	1
13	Unesterified cholesterol-rich lipid particles in atherosclerotic lesions of human and rabbit aortas	The American Journal of Pathology 1988;131(1):73–83	Pathology	Chao, F.F.; Amende, L.M.; Blanchette-Mackie, E.J.; Skarlatos, S.L.; Gamble, W.; Resau, J.H.; Mergner, W.T.; Kruth, H.S.	Biochemistry	✓	✓	Autopsy	✓	4
14	Differential expression of integrin $\alpha 5 \beta 1$ in human abdominal aortic aneurysm and healthy aortic tissues and its significance in pathogenesis	Journal of Surgical Research 2004;118(2):176–82	Surgery	Cheuk, Bernice L.Y.; Cheng, Stephen W.K.	Biochemistry/ Imaging	✓	✓	Surgery/ Transplant	✓	1
15	Free DNA precipitates calcium phosphate apatite crystals in the arterial wall <i>in vivo</i>	Atherosclerosis 2017;259:60–7	Peripheral vascular disease	Coscas, Raphaël; Bensussan, Marie; Jacob, Marie-Paule; Louedec, Liliane; Massy, Ziad; Sadoine, Jeremy; Daudon, Michel; Chaussain, Catherine; Bazin, Dominique; Michel, Jean-Baptiste	Imaging	✓		Autopsy		4
16	Gene expression study in positron emission tomography-positive abdominal aortic aneurysms identifies CCL18 as a potential biomarker for rupture risk	Molecular Medicine (Cambridge, Mass.) 2015;20:697–706	Medicine, research and experimental mental	Courtois, A.; Nusgens, B.V.; Hustinx, R.; Namur, G.; Gomez, P.; Kuivaniemi, H.; Defraigne, J.O.; Colige, A.C.; Sakalihan, N.	Biochemistry/ Imaging	✓	✓	Surgery		2
17	Preoperative treatment with doxycycline reduces aortic wall expression and activation of matrix metalloproteinases in patients with abdominal aortic aneurysms	Journal of Vascular Surgery 2000;31(2):325–42	Surgery	Curci, John A.; Mao, Dongli; Bohner, Diane G.; Allen, Brent T.; Rubin, Brian G.; Reilly, Jeffrey M.; Sicard, Gregorio A.; Thompson, Robert W.	Biochemistry	✓	✓	Surgery	✓	1
18	Site-specific nitration of apolipoprotein A-I at tyrosine 166 is both abundant within human atherosclerotic plaque and dysfunctional	The Journal of Biological Chemistry 2014;289(15):10276–92	Biochemistry and molecular biology	DiDonato, Joseph A.; Aulak, Kulwant; Huang, Ying; Wäagner, Matthew; Gerstenecker, Gary; Topbas, Celalettin; Gogonea, Valentin; DiDonato, Anthony J.; Tang, W.H. Wilson; Mehl, Ryan A.; Fox, Paul L.; Plow, Edward F.; Smith, Jonathan D.; Fisher, Edward A.; Hazen, Stanley L.	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1

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**Table S1** Summary data from all the manuscripts included in the review—*Continued*

19	The function and distribution of apolipoprotein A1 in the artery wall are markedly distinct from those in plasma	Circulation 2013;128(15): 10.1161/ CIRCULATION AHA.113. 002624	Peripheral vascular disease	DiDonato, Joseph A.; Huang, Ying; Aulak, Kulwant; Even-Or, Orli; Gerstenecker, Gary; Gogonea, Valentin; Wu, Yuping; Fox, Paul L.; Tang, W. H. Wilson; Plov, Edward E.; Smith, Jonathan D.; Fisher, Edward A.; Hazen, Stanley L.	Biochemistry	✓	✓	Surgery/ Transplant	1
20	Increased expression of leukotriene C(4) synthase and predominant formation of cysteinyl-leukotrienes in human abdominal aortic aneurysm	Proceedings of the National Academy of Sciences of the United States of America 2010; 107(49):21093–7	Multi- disciplinary sciences	Di Gennaro, Antonio; Wägstätter, Dick; Mäyränpää, Mikko I.; Gabrielsen, Anders; Swedenborg, Jesper; Hamsten, Anders; Samuelsson, Bengt; Eriksson, Per; Haeggström, Jesper Z.	Biochemistry	✓	✓	Surgery/ Transplant	1
21	Biomechanical properties of ruptured versus electively repaired abdominal aortic aneurysm wall tissue	Journal of Vascular Surgery 2006;43(3):570–6	Surgery	Di Martino, Elena S.; Bohra, Ajay; Vande Geest, Jonathan P.; Gupta, Navyash; Makaroun, Michel S.; Vorp, David A.	Biomechanical	✓	✓	Surgery	2
22	Biomechanics of abdominal aortic aneurysm in the presence of endoluminal thrombus: Experimental characterisation and structural static computational analysis	European Journal of Vascular and Endovascular Surgery 1998; 15(4):290–9	Surgery	Di Martino, E.; Mantero, S.; Inzoli, F.; Melissano, G.; Astore, D.; Chiesa, R.; Fumero, R.	Biomechanical	✓	✓	Surgery	3
23	Assessment of the role of pancreatic proteases in human abdominal aortic aneurysms and occlusive disease	Clinica Chimica Acta 1988; 177(1):1–10	Medical laboratory technology	Dubick, Michael A.; Hunter, Glenn C.; Perez-Lizano, Edward; Mar, Gregory; Geokas, Michael C.	Biochemistry	✓	✓	Surgery/ Autopsy	1
24	<i>In vitro</i> characterisation of physiological and maximum elastic modulus of ascending thoracic aortic aneurysms using uniaxial tensile testing	European Journal of Vascular and Endovascular Surgery 2010;39(6):700–7	Surgery	Duprey, A.; Khanafer, K.; Schlicht, M.; Avril, S.; Williams, D.; Berguer, R.	Biomechanical	✓	✓	Surgery	3
25	Biaxial rupture properties of ascending thoracic aortic aneurysms	Acta Biomaterialia 2016;42:273–85	Engineering, Biomedical	Duprey, Ambroise; Trabelsi, Olfa; Vola, Marco; Favre, Jean-Pierre; Avril, Stéphane	Biomechanical	✓	✓	Surgery	3
26	Calcification of the human thoracic aorta during aging	Calcified Tissue International 1994;54(4):268–73	Endocri- nology and metabolism	Elliott, R.J.; McGrath, L.T.	Biochemistry	✓	✓	Autopsy	2
27	Calcium channel blockers enhance cholesteryl ester hydrolysis and decrease total cholesterol accumulation in human aortic tissue	Circulation Research 1990;66(1):185–90	Hematology	Etingin, O.R.; Hajjar, D.P.	Biochemistry	✓	✓	Surgery	1
28	Age-related changes in the elastic tissue of the human aorta	Journal of Vascular Research 2012;49(1):77–86	Physiology	Fritze, O.; Romero B.; Schleicher, M.; Jacob, M.P.; Oh D.Y.; Starcher, B.; Schenke-Layland, K.; Bujan, J.; Stock, U.A.	Biochemistry/ Imaging	✓	✓	Surgery	3

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**Table S1** Summary data from all the manuscripts included in the review—*Continued*

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/ storage info	Statistical information present	Cohort	Age/ Gender information given	Control classification
29	The role of extracellular signal-related kinase during abdominal aortic aneurysm formation	Journal of the American College of Surgeons 2012;215(5):668.e1–80.e1	Surgery	Ghosh, A.; DiMusto, P.D.; Ehrlichman, L.K.; Sadiq O.; McEvoy, B.; Futchko, J.S.; Henke, P.K.; Eliason, J.L.; Upchurch G.R.	Biochemistry/ Imaging	✓	✓	Surgery/ Autopsy		1
30	Inflammatory micro-environmental cues of human atherothrombotic arteries confer to vascular smooth muscle cells the capacity to trigger lymphoid neogenesis	PLoS One 2015;9(12): e116295	Multi-disciplinary sciences	Guedj, Kevin; Khallou-Laschet, Jamila; Clement, Marc; Morvan, Marion; Delbosc, Sandrine; Gaston, Anh-Thu; Andreatta, Francesco; Castier, Yves; Deschildre, Catherine; Michel, Jean-Baptiste; Caligiuri, Giuseppina; Nicoletti, Antonino	Biochemistry	✓	✓	Surgery/ Autopsy		1
31	Inhibition of notch1 signaling reduces abdominal aortic aneurysm in mice by attenuating macrophage-mediated inflammation	Arteriosclerosis, Thrombosis, and Vascular Biology 2012;32(12): 3012–23	Peripheral vascular disease	Hans, Chetan P.; Koenig, Sara N.; Huang, Nianyuan; Cheng, Jeeyun; Beceiro, Susana; Guggilam, Anuradha; Kuivaniemi, Helena; Partida-Sánchez, Santiago; Garg, Vidu	Imaging	✓	✓	Surgery/ Autopsy	✓	1
32	Elevated levels of protein-bound p-hydroxyphenylacetaldehyde, an amino-acid-derived aldehyde generated by myeloperoxidase, are present in human fatty streaks, intermediate lesions and advanced atherosclerotic lesions	Biochemical Journal 2000;352(Pt 3): 693–9	Biochemistry and molecular biology	Hazen, S.L.; Gaut, J.P.; Crowley, J.R.; Hsu, F.F.; Heinecke, J.W.	Biochemistry	✓	✓	Surgery/ Autopsy		1
33	3-Chlorotyrosine, a specific marker of myeloperoxidase-catalyzed oxidation, is markedly elevated in low density lipoprotein isolated from human atherosclerotic intima	The Journal of Clinical Investigation 1997;99(9): 2075–81	Medicine, research and experimental	Hazen, S.L.; Heinecke, J.W.	Biochemistry	✓		Surgery/ Transplant/ Autopsy		1
34	Molecular-level characterization of elastin-like constructs and human aortic elastin	Matrix Biology 2014;38:12–21	Biochemistry and molecular biology	Heinz, Andrea; Schröder, Christoph U.; Baud, Stéphane; Keeley, Fred W.; Mithieux, Suzanne M.; Weiss, Anthony S.; Neubert, Reinhard H.H.; Schmelzer, Christian E.H.	Biochemistry			Surgery	✓	1
35	Association of malondialdehyde-acetaldehyde (MAA) adducted proteins with atherosclerotic-induced vascular inflammatory injury	Atherosclerosis 1998;141(1): 107–16	Peripheral vascular disease	Hill, Gary E.; Miller, Jacqueline A.; Baxter, B. Timothy; Klassen, Lynell W.; Duryee, Michael J.; Tuma, Dean J.; Thiele, Geoffrey M.	Imaging	✓		Surgery/ Autopsy		1

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

	Pathobiology:	Pathology	Hinterseher, Irene; Erdman, Robert; Elmore, James R.; Stahl, Elizabeth; Pahl, Matthew C.; Derr, Kimberly; Golden, Alicia; Lillis, John H.; Cindric, Matthew C.; Jackson, Kathryn; Bowen, William D.; Schworer, Charles M.; Chernousov, Michael A.; Franklin, David P.; Gray, John L.; Garvin, Robert P.; Gatalica, Zoran; Carey, David J.; Tromp, Gerard; Kuivaniemi, Helena	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
36	Novel pathways in the pathobiology of human abdominal aortic aneurysms	Immunopathology, Molecular and Cellular Biology 2013;80(1):1–10	Chemistry, Multi-disciplinary	Hinterseher, Irene; Schworer, Charles M.; Lillis, John H.; Stahl, Elizabeth; Erdman, Robert; Gatalica, Zoran; Tromp, Gerard; Kuivaniemi, Helena	Imaging	✓	✓	Surgery/ Autopsy	1
37	Immunohistochemical analysis of the natural killer cell cytotoxicity pathway in human abdominal aortic aneurysms	International Journal of Molecular Sciences 2015; 16(5):11196–212	Hematology	Hofmann Bowman, Marion; Wilk, Jeannine; Heydemann, Ahlke; Kim, Gene; Rehman, Jalees; Lodato, Joseph A.; Raman, Jai; McNally, Elizabeth M. Hoshino, Hironobu; Takahashi, Masaaki; Kushida, Kazuhiro; Ohishi, Tsuyoshi; Kawana, Kouichi; Inoue, Tetsuo	Biochemistry/ Imaging	✓	✓	Surgery	3
38	S100A12 mediates aortic wall remodeling and aortic aneurysm	Circulation Research 2010;106(1): 145–54	Peripheral vascular disease						
39	Quantitation of the crosslinks, pyridinoline, deoxypyridinoline and pentosidine, in human aorta with dystrophic calcification	Atherosclerosis 1995;112(1): 39–46	Pathology	Ho-Tin-Noé, B.; Vo, S.; Bayles, R.; Ferrière, S.; Ladjal, H.; Toumi, S.; Deschildre, C.; Ollivier, V.; Michel, J.-B.	Biochemistry/ Imaging	✓	✓	Autopsy	1
40	Cholesterol crystallization in human atherosclerosis is triggered in smooth muscle cells during the transition from fatty streak to fibroatheroma	Journal of Pathology 2017;241(5): 671–82	Pathology					Transplant	1
41	An abundant dysfunctional apolipoprotein A1 in human atheroma	Nature Medicine 2014;20(2): 193–203	Biochemistry and molecular biology	Huang, Ying; DiDonato, Joseph A.; Levison, Bruce S.; Schmitt, Dave; Li, Lin; Wu, Yuping; Buffa, Jennifer; Gu, Timothy; Gerstenecker, Gary; Wang, Zeneng; Culley, Miranda K.; Hazen, Jennie E.; DiDonato, Anthony J.; Fu, Xiaoming; Berisha, Stela; Peng, Daoquan; Nguyen, Truc; Liang, Shaohong; Chuang, Chia-Chi; Cho, Leslie; Plow, Edward F.; Fox, Paul L.; Gogonea, Valentin; Tang, W.H. Wilson; Parks, John S.; Fisher, Edward A.; Smith, Jonathan D.; Hazen, Stanley L.	Biochemistry/ Imaging	✓	✓	Surgery	1

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**Table S1** Summary data from all the manuscripts included in the review—*Continued*

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/storage info	Statistical information present	Cohort	Age/Gender information given	Control classification
42	Ang II enhances noradrenaline release from sympathetic nerve endings thus contributing to the up-regulation of metalloprotease-2 in aortic dissection patients' aorta wall	PLoS One 2013;8(10):e76922	Multi-disciplinary sciences	Hu, Zhipeng; Wang, Zhiwei; Wu, Hongbing; Yang, Zhimin; Jiang, Wanli; Li, Luo Cheng; Hu, Xiaoping	Biochemistry	✓	✓	Surgery	✓	1
43	Regional and directional variations in the mechanical properties of ascending thoracic aortic aneurysms	Medical Engineering & Physics 2009;31(1):1-9	Engineering, Biomedical	Iliopoulos, Dimitrios C.; Deveja, Rejar P.; Kritharis, Eleftherios P.; Perrea, Despina; Stonis, George D.; Toutouzias, Konstantinos; Stefanadis, Christodoulos; Sokolis, Dimitrios P.	Biomechanical	✓	✓	Surgery		3
44	Ascending thoracic aortic aneurysms are associated with compositional remodeling and vessel stiffening but not weakening in age-matched subjects	The Journal of Thoracic and Cardiovascular Surgery 2009; 137(1):101-9	Surgery	Iliopoulos, Dimitrios C.; Kritharis, Eleftherios P.; Giagini, Athina T.; Papadodima, Stavroula A.; Sokolis, Dimitrios P.	Biomechanical/ Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
45	Placental growth factor mediates aldosterone-dependent vascular injury in mice	The Journal of Clinical Investigation 2010;120(11):3891-900	Medicine, research and experimental mental	Jaffe, Iris Z.; Newfell, Brenna G.; Aronowitz, Mark; Mohammad, Najwa N.; McGraw, Adam P.; Perreault, Roger E.; Carmeliet, Peter; Ehsan, Afshin; Mendelsohn, Michael E.	Biochemistry	✓	✓	Surgery/ Transplant		1
46	Determination of cholesterol in atherosclerotic plaques using near infrared diffuse reflection spectroscopy	Atherosclerosis 1999;147(2):327-37	Peripheral vascular disease	Jaross, Werner; Neumeister, Volker; Lattke, Peter; Schuh, Dieter	Biochemistry	✓		Autopsy		3
47	Disruption of mechanical stress in extracellular matrix is related to Stanford type A aortic dissection through down-regulation of Yes-associated protein	Aging (Albany NY) 2016;8(9):1923-38	Geriatrics and gerontology	Jiang, Wen-Jian; Ren, Wei-Hong; Liu, Xu-Jie; Liu, Yan; Wu, Fu-Jian; Sun, Li-Zhong; Lan, Feng; Du, Jie; Zhang, Hong-Jia	Biochemistry/ Imaging/ Bio-mechanical	✓	✓	Surgery/ Transplant	✓	1
48	Shear stress-induced collagen XII expression is associated with atherogenesis	Biochemical and Biophysical Research Communications 2003;308(1):152-8	Biophysics	Jin, Xin; Iwasa, Satoshi; Okada, Kyoko; Ooi, Akishii; Mitsui, Kazuhiro; Mitsumata, Masako	Biochemistry/ Imaging/ Bio-mechanical	✓		Autopsy		3
49	Demonstration of Chlamydia pneumoniae in the walls of abdominal aortic aneurysms	Journal of Vascular Surgery 1997; 25(3):499-505	Surgery	Juvonen, J.; Juvonen, T.; Laurila, A.; Alakarppa, H.; Loumatmaa, K.; Surcel, H.-M.; Leinonen, M.; Kairaluoma, M.I.; Saikku, P.	Biochemistry/ Imaging	✓		Surgery/ Autopsy	✓	1
50	Identification and quantitation of alpha 2-HS-glycoprotein in the mineralized matrix of calcified plaques of atherosclerotic human aorta	Atherosclerosis 1985;55(1):63-9	Peripheral vascular disease	Keeley, F.W.; Sitarz, E.E.	Biochemistry/ Imaging			Autopsy		3

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**Table S1** Summary data from all the manuscripts included in the review—Continued

51	Characterization of proteins from the calcified matrix of atherosclerotic human aorta	Atherosclerosis 1983;46(1): 29–40	Peripheral vascular disease	Keeley, F.W.; Sitarz, E.E.	Biochemistry/ Imaging	✓	Autopsy	3		
52	Determination of the elastic modulus of ascending thoracic aortic aneurysm at different ranges of pressure using uniaxial tensile testing	The Journal of Thoracic and Cardiovascular Surgery 2011; 142(3):682–6	Surgery	Khanafar, Khalil; Duprey, Ambroise; Zainal, Mohammad; Schlicht, Marty; Williams, David; Berguer, Ramon	Biomechanical	✓	Surgery	2		
53	How should we measure and report elasticity in aortic tissue?	European Journal of Vascular and Endovascular Surgery 2013; 45(4):332–9	Surgery	Khanafar, K.; Schlicht, M.S.; Berguer, R.	Biomechanical	✓	Surgery	3		
54	Association of matrix metalloproteinase levels with collagen degradation in the context of abdominal aortic aneurysm	European Journal of Vascular and Endovascular Surgery 2017; 53(4):549–58	Surgery	Klaus, V.; Taniot-Schmies, F.; Reeps, C.; Trenner, M.; Matevossian, E.; Eckstein, H.H.; Pelisek, J.	Biochemistry/ Imaging	✓	Surgery	1		
55	A custom image-based analysis tool for quantifying elastin and collagen micro-architecture in the wall of the human aorta from multi-photon microscopy	Journal of Biomechanics 2014;47(5): 935–43	Engineering, Biomedical	Koch, R.G.; Tsamis, A.; D'Amore, A.; Wagner, W.R.; Watkins, S.C.; Gleason, T.G.; Vorp, D.A.	Imaging	✓	Surgery/ Autopsy	3		
56	Cholesterol-dependent changes of glycosaminoglycan pattern in human aorta	Basic Research in Cardiology 1996;91(5): 344–52	Cardiac and cardio-vascular systems	Kruse, R.; Merten, M.; Buddecke, E.; Schmidt, A.; Völker, W.; Yoshida, K.	Biochemistry	✓	Autopsy	1		
57	Selective mineralization of tough hydrogel lumens for simulating arterial plaque	Advanced Engineering Materials 2017;19(1)	Materials sciences, multi-disciplinary	Lao, L.; Robinson, S.S.; Peele, B.; Zhao, H.; Mac Murray, B.C.; Min, J.K.; Mosadegh, B.; Dunham, S.; Shepherd, R.F.	Chemistry/ Bio-mechanical		Autopsy	3		
58	Increased estrogen receptor alpha in experimental aortic aneurysms in females compared with males	Journal of Surgical Research 2014; 186(1):467–74	Surgery	Laser, Adriana; Ghosh, Abhijit; Roelofs, Karen; Sadiq, Omar; McEvoy, Brendan; DiMusto, Paul; Eliason, Jon; Upchurch Jr, Gilbert R.	Biochemistry/ Imaging	✓	Surgery/ Autopsy	1		
59	A methodology for concomitant isolation of intimal and adventitial endothelial cells from the human thoracic aorta	PLoS One 2015;10(11): e0143144	Multi-disciplinary sciences	Leclercq, Anne; Veillat, Véronique; Lortot, Sandrine; Spuul, Pirjo; Madonna, Francesco; Roques, Xavier; Génot, Elisabeth	Biochemistry/ Imaging	✓	Surgery/ Autopsy	1		
60	Thermal compression and molding of atherosclerotic vascular tissue with use of radiofrequency energy: Implications for radiofrequency balloon angioplasty	Journal of the American College of Cardiology 1989;13(5): 1167–75	Cardiac and cardio-vascular systems	Lee, Benjamin I.; Becker, Gary J.; Waller, Bruce E.; Barry, Kevin J.; Connolly, Raymond J.; Kaplan, Jonathan; Shapiro, Alan R.; Nardella, Paul C.	Biophysics/ Imaging	✓	Autopsy	4		

(Continued)

**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/storage info	Statistical information present	Cohort	Age/Gender information given	Control classification
61	Plasma concentrations predict aortic expression of growth-arrest-specific protein 6 in patients undergoing coronary artery bypass grafting	PLoS One 2013;8(11): e79452	Multi-disciplinary sciences	Lee, Chien-Hsing; Shieh, Yi-Shing; Tsai, Chien-Sung; Hung, Yi-Jen; Tsai, Yi-Ting; Lin, Chih-Yuan	Biochemistry	✓	✓	Surgery	✓	1
62	The identification of the vitamin k-dependent bone protein osteocalcin as one of the $\gamma$ -carboxyglutamic acid containing proteins present in calcified atherosclerotic plaque and mineralized heart valves	Atherosclerosis 1983;46(1): 49–56	Peripheral vascular disease	Levy, Robert J.; Gundberg, Caren; Scheinman, Robert	Biochemistry			Autopsy	✓	1
63	Brahma-related gene 1 inhibits proliferation and migration of human aortic smooth muscle cells by directly up-regulating Ras-related associated with diabetes in the pathophysiologic processes of aortic dissection	The Journal of Thoracic and Cardiovascular Surgery 2015; 150(5):1292. e2–301.e2	Surgery	Liao, Wei-Lin; Ian, Meng-Wei; Yuan, Yang; Wang, Guo-Kun; Wang, Chong; Tang, Hao; Xu, Zhi-Yun	Biochemistry/ Imaging		✓	Surgery/ Autopsy/ Transplant	✓	1
64	Downregulation of the Yes-associated matrix is associated with extracellular matrix disorders in ascending aortic aneurysms	Stem Cells International 2016;2016: 6786184	Cell and tissue engineering	Li, Haiyang; Jiang, Wenjian; Ren, Weihong; Guo, Dong; Guo, Jialong; Wang, Xiaolong; Liu, Yuyong; Lan, Feng; Du, Jie; Zhang, Hongjia	Biochemistry/ Imaging	✓	✓	Surgery	✓	1
65	Regional expression of HOXA4 along the aorta and its potential role in human abdominal aortic aneurysms	BMC Physiology 2011;1:19		Lillis, John H.; Erdman, Robert; Schworer, Charles M.; Golden, Alicia; Derr, Kimberly; Gatalica, Zoran; Cox, Laura A.; Shen, Jianbin; Vander Heide, Richard S.; Lenk, Guy M.; Hlavaty, Leigh; Li, Li; Elmore, James R.; Franklin, David P.; Gray, John L.; Garvin, Robert P.; Carey, David J.; Lancaster, Wayne D.; Tromp, Gerard; Kuivaniemi, Helena	Biochemistry/ Imaging	✓	✓	Surgery/ Autopsy	✓	1
66	A new microimmuno assay for apolipoprotein B in arterial tissue: Studies on peroperative human biopsies	Atherosclerosis 1986;62(3): 227–37	Peripheral vascular disease	Lindén, T.; Wiklund, O.; Fager, G.; Olofsson, S.O.; Bondjers, G.	Biochemistry	✓	✓	Surgery/ Autopsy		3
67	The expression of monocyte chemotactic protein (MCP-1) in human vascular endothelium <i>in vitro</i> and <i>in vivo</i>	Molecular and Cellular Biochemistry 1993;126(1):61–8	Cell Biology	Li, Yi-Shuan; Shyy, Yeun-Jund; Wright, James G.; Valente, Anthony J.; Cornhill, J. Fredrick; Kolattukudy, P.E.	Biochemistry	✓		Surgery		3
68	Increased expression of 72-kd type IV collagenase (MMP-2) in human aortic atherosclerotic lesions	The American Journal of Pathology 1996; 148(1):121–8	Pathology	Li, Z.; Li, L.; Zielke, H.R.; Cheng, L.; Xiao, R.; Crow, M.T.; Stetler-Stevenson, W.G.; Froehlich, J.; Lakatta, E.G.	Biochemistry/ Imaging	✓	✓	Autopsy	✓	1

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

69	Cell cycle-dependent inhibition of human vascular smooth muscle cell proliferation by prostaglandin E1	Experimental Cell Research 1985;160(1): 117–25	Oncology	Loesberg, C.; Van Wijk, R.; Zandbergen, J.; Van Aken, W.G.; Van Mourik, J.A.; De Groot, Ph.G.	Biochemistry	✓	Autopsy	3	
70	Ultrastructural localization of endogenous albumin in human aortic tissue by protein A-gold immunocytochemistry	The American Journal of Pathology 1992;140(1): 179–91	Pathology	Londoño, I.; Leclerc, Y.; Bendayan, M.	Biochemistry/ Imaging	✓	Surgery	1	
71	Decreased vascular smooth muscle cell density in medial degeneration of human abdominal aortic aneurysms	The American Journal of Pathology 1997; 150(3):993–1007	Pathology	López-Candales, A.; Holmes, D.R.; Liao, S.; Scott, M.J.; Wickline, S.A.; Thompson, R.W.	Biochemistry/ Imaging	✓	Surgery	1	
72	Static circumferential tangential modulus of human atherosclerotic tissue	Journal of Biomechanics 1994;27(2): 195–204	Engineering, Biomedical	Loree, Howard M.; Grodzinsky, Alan J.; Park, Susan Y.; Gibson, Lorna J.; Lee, Richard T.	Biomechanical/ Imaging	✓	Autopsy	2	
73	Oxidative stress in human aorta of patients with advanced aortoiliac occlusive disease	Brazilian Journal of Cardiovascular Surgery 2016; 31(6):428–33	Journal of	Lucas, Márcio Luís; Carraro, Cristina Campos; Bello-Klein, Adriane; Kalli, Antonio Nocchi; Aerts, Newton	Biochemistry	✓	Surgery/ Autopsy	1	
74	miR-24 limits aortic vascular inflammation and murine abdominal aneurysm development	Nature Communications 2014;5:5214	Multi-disciplinary sciences	Maegdefessel, L.; Spin, J.M.; Raaz, U.; Eken, S.M.; Toh, R.; Azuma, J.; Adam, M.; Nakagami, F.; Nagakami, E.; Heymann, H.M.; Chernogubova, E.; Chernogubova, E.; Jin, H.; Roy, J.; Hultgren, R.; Caidahl, K.; Schrepfer, S.; Hamsten, A.; Eriksson, P.; McConnell, M.V.; Dalman, R.L.; Tsao, P.S.	Biochemistry	✓	Surgery/ Autopsy	1	
75	Significant differences in the material properties between aged human and porcine aortic tissues	European Journal of Cardio-thoracic Surgery 2011;40(1):28–34	Surgery	Martin, C.; Pham, T.; Sun, W.	Biomechanical/ Imaging	✓	Autopsy	4	
76	Alternative splicing impairs soluble guanylyl cyclase function in aortic aneurysm	American Journal of Physiology - Heart and Circulatory Physiology 2014;307(11): H1565–75	Physiology	Martin, Emil; Golunski, Eva; Laing, Susan T.; Estreza, Anthony L.; Sharina, Iraida G.	Biochemistry	✓	Autopsy	1	

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

Article #	Article Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/ storage info	Statistical information present	Cohort	Age/ Gender information given	Control classification
77	Molecular anatomy of ascending aorta in atherosclerosis by MS Imaging: Specific lipid and protein patterns reflect pathology	Journal of Proteomics 2015;126:245–51	Biochemical research methods	Martin-Lorenzo, Marta; Balluff, Benjamin; Maroto, Aroa S.; Carreira, Ricardo J.; van Zeijl, Rene J.M.; Gonzalez-Calero, Laura; de la Cuesta, Fernando; Barderas, Maria G.; Lopez-Almodovar, Luis F.; Padial, Luis R.; McDonnell, Liam A.; Vivanco, Fernando; Alvarez-Llamas, Gloria	Biochemistry	✓	✓	Autopsy	✓	1
78	Comparative study of postsynaptic α-adrenoceptors in aorta obtained from human and other mammalian species	Pharmacological Research 1991; 23(1):57–69	Pharmacology and pharmacy	Martinotti, E.; Breschi, M.C.; Omini, C.; Pani, M.; Ciucci, M.A.; Nieri, P.	Biochemistry	✓	✓	Surgery	✓	4
79	Expression of secretory group IIA phospholipase A2 in relation to the presence of microbial agents, macrophage infiltrates, and transcripts of proinflammatory cytokines in human aortic tissues	Arteriosclerosis, Thrombosis, and Vascular Biology 2000;20(3):751–62	Peripheral vascular disease	Menschikowski, M.; Rosner-Schiering, A.; Eckley, R.; Mueller, E.; Koch, R.; Jaross, W.	Biochemistry/ Imaging	✓	✓	Autopsy	✓	1
80	The pro-inflammatory and chemotactic cytokine microenvironment of the abdominal aortic aneurysm wall: a protein array study	Journal of Vascular Surgery 2007; 45(3):574–80	Surgery	Middleton, R.K.; Lloyd, G.M.; Bown, M.J.; Cooper, N.J.; London, N.J.; Sayers, R.D.	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
81	Failure properties of passive human aortic tissue. I—Uniaxial tension tests	Journal of Biomechanics 1982;15(11): 887–902	Engineering, Biomedical	Mohan, D.; Melvin, J.W.	Biomechanical	✓	✓	Autopsy	✓	1
82	Failure properties of passive human aortic tissue. II—Biaxial tension tests	Journal of Biomechanics 1983;16(1):31–44	Engineering, Biomedical	Mohan, D.; Melvin, J.W.	Biomechanical	✓	✓	Autopsy	✓	1
83	Lipids in cells of atherosclerotic and uninvolved human aorta: III. Lipid distribution in intimal sublayers	Experimental and Molecular Pathology 1991; 54(1):22–30	Pathology	Mukhin, Dimitry N.; Orekhov, Alexander N.; Andreeva, Elena R.; Schindeler, Eva M.; Smirnov, Vladimir N.	Biochemistry	✓	✓	Autopsy	✓	1
84	Ganglioside content and composition of cells from normal and atherosclerotic human aorta	Atherosclerosis 1989;78(1): 39–45	Peripheral vascular disease	Mukhin, Dmitry N.; Prokazova, Nina V.; Bergelson, Lev D.; Orekhov, Alexander N.	Biochemistry	✓	✓	Autopsy	✓	3
85	Neutral glycosphingolipid content and composition of cells from normal and atherosclerotic human aorta	Atherosclerosis 1992;93(3): 173–7	Peripheral vascular disease	Mukhin, D.N.; Prokazova, N.V.	Biochemistry	✓	✓	Autopsy	✓	3

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

86	Aromatase in atherosclerotic lesions of human aorta	The Journal of Steroid Biochemistry and Molecular Biology 2001;79(1-5):67-74	Endocrinology and metabolism	Murakami, Hiroshi; Harada, Nobuhiro; Sasano, Hironobu	Biochemistry	✓	✓	Autopsy	✓	1
87	Silicon contents in normal, fatty streaks and atheroma of human aortic intima: Its relationship with glycosaminoglycans	British Journal of Experimental Pathology 1985; 66(1):123-7		Nakashima, Y.; Kuroiwa, A.; Nakamura, M.	Biochemistry			Autopsy	✓	1
88	Hyperhomocysteinemia during aortic aneurysm, a plausible role of epigenetics	International Journal of Physiology, Pathophysiology and Pharmacology 2013;5(1):32-42		Narayanan, Nithya; Tyagi, Neetu; Shah, Amy; Pagni, Sebastian; Tyagi, Suresh C.	Biochemistry	✓	✓	Surgery/ Autopsy		1
89	Immunohistochemical study of the phosphorylated and activated form of c-Jun NH2-terminal kinase in human aorta	The Histochemical Journal 2001;33(3):167-71	Cell biology	Nishio, Hajime; Matsui, Kiyoshi; Tsuji, Hiroko; Tamura, Akiyoshi; Suzuki, Koichi	Imaging	✓		Autopsy	✓	1
90	The expression and localization of membrane type-1 matrix metalloproteinase in human abdominal aortic aneurysms	Journal of Vascular Surgery 2001;34(2):316-22	Surgery	Nollendorfs, Alisa; Greiner, Timothy C.; Nagase, Hideaki; Baxter, B. Timothy	Biochemistry	✓		Surgery/ Transplant		1
91	Mechanical properties of dilated human ascending aorta	Annals of Biomedical Engineering 2002; 30(5):624-35	Engineering, Biomedical	Okamoto, Ruth J.; Wagenseil, Jessica E.; DeLong, William R.; Peterson, Sara J.; Kouchoukos, Nicholas T.; Sundt, Thoralf M.	Biomechanical	✓	✓	Surgery	✓	2
92	Increased aortic stiffness in patients with Type 1 (insulin-dependent) diabetes mellitus	Diabetologia 1989;32(10):748-52	Endocrinology and metabolism	Oxlund, H.; Rasmussen, L.M.; Andreassen, T.T.; Heickendorff, L.	Biomechanical	✓	✓	Autopsy	✓	1
93	MicroRNA expression signature in human abdominal aortic aneurysms	BMC Medical Genomics 2012;5(1):25	Genetics and heredity	Pahl, Matthew C.; Derr, Kimberly; Gäbel, Gabor; Hinterseher, Irene; Elmore, James R.; Schworer, Charles M.; Peeler, Thomas C.; Franklin, David P.; Gray, John L.; Carey, David J.; Tromp, Gerard; Kuivaniemi, Helena	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
94	Transcriptional (ChIP-Chip) analysis of ELF1, FTS2, RUNX1 and STAT5 in human abdominal aortic aneurysm	International Journal of Molecular Sciences 2015; 16(5):11229-58	Biochemistry and molecular biology	Pahl, Matthew C.; Erdman, Robert; Kuivaniemi, Helena; Lillvis, John H.; Elmore, James R.; Tromp, Gerard	Biochemistry	✓		Surgery/ Autopsy	✓	1

(Continued)

**Table S1** Summary data from all the manuscripts included in the review—*Continued*

Article #	Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/storage info	Statistical information present	Cohort	Age/Gender information given	Control classification
95	Smoking increases proteolytic activity in the human abdominal aorta	Vascular and Endovascular Surgery 1998; 32(6):17–22	Surgery	Parra, J.R.; Cambria, R.A.; Freischlag, J.A.; Seabrook, G.R.; Towne, J.B.	Biochemistry	✓	✓	Autopsy	✓	1
96	Effect of aneurysm on the mechanical dissection properties of the human ascending thoracic aorta	The Journal of Thoracic and Cardiovascular Surgery 2012; 143(2):460–7	Surgery	Pasta, Salvatore; Phillippi, Julie A.; Gleason, Thomas G.; Vorp, David A.	Biomechanical	✓	✓	Surgery/ Autopsy	✓	1
97	Evidence for lipid peroxidation in atherosclerosis	Life Sciences 1990; 46(10):715–21	Pharmacology and pharmacy	Protrowski, J.J.; Hunter, G.C.; Eskelson, C.D.; Dubick, M.A.; Bernhardt, V.M.	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
98	<i>Ex vivo</i> biomechanical behavior of abdominal aortic aneurysm: Assessment using a new mathematical model	Annals of Biomedical Engineering 1996; 24(5):573–82	Engineering, Biomedical	Raghavan, M.L.; Webster, Marshall W.; Vorp, David A.	Biomechanical	✓	✓	Surgery/ Transplant	✓	1
99	Extraction of lipoprotein(a), apo B, and apo E from fresh human arterial wall and atherosclerotic plaques	Atherosclerosis 1995;113(2): 179–88	Peripheral vascular disease	Reblin, Tjark; Meyer, Nicolette; Labeur, Christine; Henne-Bruns, Doris; Beisiegel, Ulrike	Biochemistry	✓	✓	Transplant	✓	1
100	Vascular smooth muscle cell apoptosis in aneurysmal, occlusive, and normal human aortas	Journal of Vascular Surgery 2000; 31(3):567–76	Surgery	Rowe, V.L.; Stevens, S.L.; Reddick, T.T.; Freeman, M.B.; Donnell, R.; Carroll, R.C.; Goldman, M.H.	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
101	Analysis of structural changes in normal and aneurysmal human aortic tissues using FTIR microscopy	Biopolymers 2008; 89(2):160–9	Biophysics	Rubin, S.; Bonnier, F.; Sandt, C.; Ventéo, L.; Pluot, M.; Baehrel, B.; Manfait, M.; Sockalingum, G.D.	Biochemistry	✓	✓	Transplant (surgery)/ Autopsy	✓	1
102	Proinflammatory role of stem cells in abdominal aortic aneurysms	Journal of Vascular Surgery 2015; 62(5):1303.e4–11.e4	Surgery	Ryer, Evan J.; Garvin, Robert P.; Schworer, Charles M.; Bernard-Eckroth, Kamell R.; Tromp, Gerard; Franklin, David P.; Elmore, James R.; Kuivaniemi, Helena	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
103	Smooth muscle cell-specific Notch1 haploinsufficiency restricts the progression of abdominal aortic aneurysm by modulating CTGF expression	PLoS One 2017;12(5): e0178538	Multi-disciplinary sciences	Sachdeva, Jaspreet; Mahajan, Advitiya; Cheng, Jeeyun; Baeten, Jeremy T.; Lilly, Brenda; Kuivaniemi, Helena; Hans, Chetan P.	Biochemistry	✓	✓	Surgery/ Autopsy	✓	1
104	Expression of pentraxin 3 (PTX3) in human atherosclerotic lesions	Journal of Pathology 2008;215(1):48–55	Pathology	Savchenko, A.S.; Imamura, M.; Ohashi, R.; Jiang, S.; Kawasaki, T.; Hasegawa, G.; Emura, I.; Iwanari, H.; Sagara, M.; Tanaka, T.; Hamakubo, T.; Kodama, T.; Naito, M.	Imaging	✓	✓	Autopsy	✓	3

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**Table S1** Summary data from all the manuscripts included in the review—Continued

105	Analysis of secretory group II phospholipase A2 expression in human aortic tissue in dependence on the degree of atherosclerosis	Atherosclerosis 1999;144(1):73–8	Peripheral vascular disease	Schiering, A.; Mentschikowski, M.; Mueller, E.; Jaross, W.	Imaging	✓	✓	Autopsy	1
106	A microtechnique for the rapid determination of the glycosaminoglycans of vascular tissues	Analytical Biochemistry 1982;121(1):91–6	Chemistry, analytical	Schmid, K.; Wernli, M.; Nimberg, R.B.	Biochemistry	✓			3
107	Upregulation of protein kinase C $\delta$ in vascular smooth muscle cells promotes inflammation in abdominal aortic aneurysm	Journal of Surgical Research 2009;153(2):181–7	Surgery	Schubl, Sebastian; Tsai, Shirling; Ryer, Evan J.; Wang, Chunjie; Hu, June; Kent, K. Craig; Liu, Bo	Imaging			Surgery/ Autopsy	1
108	Chymase inhibitor-sensitive synthesis of endothelin-1 (1–31) by recombinant mouse mast cell protease 4 and human chymase	Biochemical Pharmacology 2015;94(2):91–100	Pharmacology and pharmacy	Semaan, Walid; Desbiens, Louisane; Houde, Martin; Labonté, Julie; Gagnon, Hugo; Yamamoto, Daisuke; Takai, Shinji; Laidlaw, Tanya; Bkaily, Ghassan; Schwertani, Adel; Pejler, Gunnar; Levesque, Christine; Desjardins, Roxane; Day, Robert; D’Orléans-Juste, Pedro	Biochemistry	✓	✓	Autopsy	4
109	Experimental abdominal aortic aneurysm formation is mediated by IL-17 and attenuated by mesenchymal stem cell treatment	Circulation 2012;126(11 Suppl 1):S38–S45	Peripheral vascular disease	Sharma, A.K.; Lu, G.; Jester, A.; Johnston, W.F.; Zhao, Y.; Hajizus, V.A.; Saadatzaheh, M.R.; Su, G.; Bhamidipati, C.M.; Mehta, G.S.; Kron, I.L.; Laubach, V.E.; Murphy, M.P.; Ailawadi, G.; Upchurch, G.R.	Biochemistry/ Imaging	✓	✓	Surgery/ Transplant	1
110	Mesenchymal stem cells attenuate NADPH oxidase-dependent high mobility group Box 1 production and inhibit abdominal aortic aneurysms	Arteriosclerosis, Thrombosis, and Vascular Biology 2016;36(5):908–18	Peripheral vascular disease	Sharma, A.K.; Salmon, M.D.; Lu, G.; Su, G.; Pope, N.H.; Smith, J.R.; Weiss, M.L.; Upchurch, G.R.	Biochemistry/ Imaging	✓	✓	Surgery/ Transplant	1
111	Prostaglandin synthesis stimulating plasma factor in patients with primary hyperlipoproteinemia—effect of dietary and drug treatment	Prostaglandins, Leukotrienes and Medicine 1986;22(2):179–89	Biochemistry and molecular biology	Sinzinger, H.; Kaliman, J.; Strobl-Jäger, Eva; Widhalm, K.; Peskar, B.A.	Biochemistry	✓	✓	Surgery	3
112	Expression of matrix metalloproteinase-12 in aortic dissection	BMC Cardiovascular Disorders 2013;13:34	Cardiac and vascular systems	Song, Yi; Xie, Yuehui; Liu, Feng; Zhao, Chong; Yu, Rui; Ban, Shao; Ye, Qiuqiang; Wen, Jianxiong; Wan, Haibo; Li, Xiang; Ma, Runwei; Meng, Zhaohui	Biochemistry/ Imaging	✓	✓	Surgery	1
113	Participation of oleic acid in the formation of the aortic aneurysm in Marfan syndrome patients	Prostaglandins and Other Lipid Mediators 2016;123:46–55	Biochemistry and molecular biology	Soto, María Elena; Iturriga Hernández, Alejandra Valeria; Guamer Lans, Verónica; Zuñiga-Muñoz, Alejandra; Aranda Fraustro, Alberto; Velázquez Espejel, Rodrigo; Pérez-Torres, Israel	Biochemistry/ Imaging	✓	✓	Surgery	1

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**Table S1** Summary data from all the manuscripts included in the review—*Continued*

Article #	Article Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/ storage info	Statistical information present	Cohort	Age/ Gender information given	Control classification
114	Analysis of oxidative stress enzymes and structural and functional proteins on human aortic tissue from different aortopathies	Oxidative Medicine and Cellular Longevity 2014;2014:760694	Cell Biology	Soto, M.E.; Soria-Castro, E.; Lans, V.G.; Ontiveros, E.M.; Mejía, B.I.; Hernandez, H.J.; Garcia, R.B.; Herrera, V.; Pérez-Torres, I.	Biochemistry/ Imaging	✓	✓	Surgery	✓	1
115	Proteomic identification of matrix metalloproteinase substrates in the human vasculature	Circulation. Cardiovascular Genetics 2013; 6(1):106–17	Genetics and heredity	Stegemann, C.; Didangelos, A.; Barallobre-Barreiro, J.; Langley, S.R.; Mandal, K.; Jahangiri, M.; Mayr, M.	Biochemistry		✓	Surgery	✓	2
116	<i>In vivo</i> transfer of cholesteryl ester from high and low density plasma lipoproteins into human aortic tissue	Arteriosclerosis (Dallas, Tex.) 1988;8(3):252–62		Stender, S.; Hjelm, E.	Biochemistry			Surgery		3
117	<i>In vivo</i> influx of free and esterified plasma cholesterol into human aortic tissue without atherosclerotic lesions	The Journal of Clinical Investigation 1984; 74(5):1871–81	Medicine, research and experimental	Stender, S.; Hjelm, E.	Biochemistry			Surgery	✓	3
118	Myeloperoxidase generates 5-chlorouracil in human atherosclerotic tissue: a potential pathway for somatic mutagenesis by macrophages	The Journal of Biological Chemistry 2006;281(6): 3096–104	Biochemistry and molecular biology	Takeshita, J.; Byun, J.; Nhan, T.Q.; Pritchard, D.K.; Pennathur, S.; Schwartz, S.M.; Chait, A.; Heinecke, J.W.	Biochemistry	✓		Surgery		1
119	Immunohistochemical localization of Betacellulin, a member of epidermal growth factor family, in atherosclerotic plaques of human aorta	Atherosclerosis 2001;155(2): 413–23	Peripheral vascular disease	Tamura, R.; Miyagawa, J.; Nishida, M.; Kihara, S.; Sasada, R.; Igarashi, K.; Nakata, A.; Yamamori, K.; Kameda-Takemura, K.; Yamashita, S.; Matsuzawa, Y.	Biochemistry/ Imaging		✓	Autopsy	✓	1
120	Detection of active cytomegalovirus infection in inflammatory aortic aneurysms with RNA polymerase chain reaction	Journal of Vascular Surgery 1994; 20(2):235–43	Surgery	Tanaka, Shinji; Komori, Kimihiro; Okadome, Kenichiro; Sugimachi, Keizo; Mori, Ryoichi	Biochemistry		✓	Surgery/ Autopsy	✓	1
121	Layer- and direction-specific material properties, extreme extensibility and ultimate material strength of human abdominal aorta and aneurysm: A uniaxial extension study	Annals of Biomedical Engineering 2015;43(11): 2745–59	Engineering, Biomedical	Teng, Zhongzhao; Feng, Jiaxuan; Zhang, Yongxue; Huang, Yuan; Sutcliffe, Michael P.E.; Brown, Adam J.; Jing, Zaiping; Gillard, Jonathan H.; Lu, Qingsheng	Biomechanical/ Imaging	✓	✓	Surgery	✓	1
122	A comparison of mechanical properties of materials used in aortic arch reconstruction	The Annals of Thoracic Surgery 2009;88(5): 1484–91	Surgery	Tremblay, Dominique; Zigras, Tiffany; Cartier, Raymond; Leduc, Louis; Butany, Jagdish; Mongrain, Rosaire; Leask, Richard L.	Biomechanical	✓	✓	Surgery/ Autopsy	✓	1
123	Release of prostacyclin from the human aorta	Cardiovascular Research 1988; 22(7):489–93	Cardiac and cardiovascular systems	Tsang, V.; Jeremy, J.Y.; Mikhailidis, D.P.; Walesby, R.K.; Wright, J.C.; Dandona, P.	Biochemistry	✓	✓	Surgery	✓	2

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

124	Simultaneous analysis of 1176 gene products in normal human aorta and abdominal aortic aneurysms using a membrane-based complementary DNA expression array	Journal of Vascular Surgery 2001; 34(1):143–50	Surgery	Tung, William S.; Lee, Jason K.; Thompson, Robert W.	Biochemistry	✓	Surgery	✓	1
125	Disease stage-dependent accumulation of lipid and protein oxidation products in human atherosclerosis	The American Journal of Pathology 2002; 160(2):701–10	Pathology	Upston, Joanne M.; Niu, Xianwa; Brown, Andrew J.; Mashima, Ryuichi; Wang, Hongjie; Senthilmohan, Revathy; Kettle, Anthony J.; Dean, Roger T.; Stocker, Roland	Biochemistry	✓	Autopsy	✓	1
126	The DNA methylation drift of the atherosclerotic aorta increases with lesion progression	BMC Medical Genomics 2015;8:7	Genetics and heredity	Valencia-Morales, María del Pilar; Zaina, Silvio; Heyn, Holger; Carmona, F. Javier; Varol, Nuray; Sayols, Sergi; Condom, Enric; Ramirez-Ruz, José; Gomez, Antonio; Moran, Sebastian; Lund, Gertrud; Rodríguez-Ríos, Dalia; López-González, Gladys; Ramírez-Nava, Magda; de la Rocha, Carmen; Sanchez-Flores, Alejandro; Esteller, Manel	Biochemistry	✓	Autopsy	✓	1
127	Characterization of human aortic collagen's elasticity by nuclear magnetic resonance	Magnetic Resonance Imaging 1993;11(3):395–9	Radiology nuclear medicine and medical imaging	Vinée, Philippe; Meurer, Bernard; Constantinesco, André; Kohlberger, Bernd; Hauenstein, Karlheinz H.; Laubenberger, Jörg; Petkov, Simeon	Biomechanical/ Biochemistry	✓	Autopsy	✓	1
128	Immunoglobulins and complement components in human aortic atherosclerotic intima	Atherosclerosis 1985;55(1):35–50	Peripheral vascular disease	Vlaicu, R.; Rus, H.G.; Niculescu, E.; Cristea, Anca	Biochemistry/ Imaging	✓	Autopsy	✓	1
129	Association of intraluminal thrombus in abdominal aortic aneurysm with local hypoxia and wall weakening	Journal of Vascular Surgery 2001;34(2):291–9	Surgery	Vorp, David A.; Lee, Paul C.; Wang, David H.J.; Makaroun, Michel S.; Nemoto, Edwin M.; Ogawa, Satoshi; Webster, Marshall W.	Biochemical/ Imaging/ Bio-mechanical	✓	Surgery/ Transplant	✓	1
130	Effect of aneurysm on the tensile strength and biomechanical behavior of the ascending thoracic aorta	The Annals of Thoracic Surgery 2003;75(4):1210–4	Surgery	Vorp, David A.; Schiro, Brian J.; Ehrlich, Marek P.; Juvonen, Tatu S.; Ergin, M. Arisan; Griffith, Bartley P.	Biomechanical	✓	Surgery/ Autopsy	✓	1
131	Layer-specific damage experiments and modeling of human thoracic and abdominal aortas with non-atherosclerotic intimal thickening	Journal of the Mechanical Behavior of Biomedical Materials 2012;12:93–106	Engineering, biomedical	Weisbecker, Hannah; Pierce, David M.; Regtini, Peter; Holzapfel, Gerhard A.	Biomechanical/ Imaging	✓	Autopsy	✓	1

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**Table S1** Summary data from all the manuscripts included in the review—Continued

Article #	Article Title	Journal details	JCR classification	Authors	Technique class	Specimen handling/storage info	Statistical information present	Cohort	Age/Gender information given	Control classification
132	The role of elastin and collagen in the softening behavior of the human thoracic aortic media	Journal of Bio-mechanics 2013;46(11): 1859–65	Engineering, Biomedical	Weisbecker, Hannah; Viertler, Christian; Pierce, David M.; Holzappel, Gerhard A.	Biomechanical/ Imaging	✓	✓	Autopsy	✓	1
133	Inhibiting the Th17/IL-17A-related inflammatory responses with digoxin confers protection against experimental abdominal aortic aneurysm	Arteriosclerosis, Thrombosis, and Vascular Biology 2014;34(11): 2429–38	Peripheral vascular disease	Wei, Z.; Wang, Y.; Zhang, K.; Liao, Y.; Ye, P.; Wu, J.; Wang, Y.; Li, F.; Yao, Y.; Zhou, Y.; Liu, J.	Biochemistry/ Imaging	✓	✓	Surgery		1
134	Syndecans are differentially expressed during the course of aortic aneurysm formation	Journal of Vascular Surgery 2007; 46(5):1014–25	Surgery	Wen, Jing; Wang, Peiyi; Smith, Sumona V.; Haller, Carolyn A.; Chaikof, Elliot L.	Biochemistry/ Imaging	✓		Surgery		3
135	Detection of HOCl-mediated protein oxidation products in the extracellular matrix of human atherosclerotic plaques	Biochemical Journal 2003;370(Pt 2): 729–35	Biochemistry and molecular biology	Woods, Alan A.; Linton, Stuart M.; Davies, Michael J.	Biochemistry	✓	✓	Surgery		1
136	Immune activation caused by vascular oxidation promotes fibrosis and hypertension	The Journal of Clinical Investigation 2016;126(1): 50–67	Medicine, research and experimental mental	Wu, Jing; Saleh, Mohamed A.; Kirabo, Annet; Itani, Hana A.; Montaniet, Kim Ramil C.; Xiao, Liang; Chen, Wei; Mernaugh, Raymond L.; Cai, Hua; Bernstein, Kenneth E.; Goronzy, Jorg J.; Weyand, Cornelia M.; Curci, John A.; Barbaro, Natalia R.; Moreno, Heitor; Davies, Sean S.; Roberts, L. Jackson; Madhur, Meena S.; Harrison, David G.	Biochemistry/ Imaging		✓	Surgery	✓	1
137	Expression of the cyclin-dependent kinase inhibitor, p21Waf-1/Cip-1/Sdi-1, in human vascular smooth muscle cells in the proliferating state	Heart and Vessels 1998;13(5): 246–55	Cardiac and cardiovascular systems	Yamaguchi, Miki; Kato, Seiya; Fujii, Teruhiko; Miyagi, Naohisa; Morimatsu, Minoru	Biochemistry/ Imaging	✓		Autopsy	✓	1
138	Expression of thrombomodulin in human aortic smooth muscle cells with special reference to atherosclerotic lesion types and age differences	Medical Electron Microscopy 2003;36(3): 165–72	Microscopy	Yoshii, Yasuyoshi; Okada, Yoshikatsu; Sasaki, Shinjiro; Mori, Hiroshi; Oida, Koji; Ishii, Hidemi	Biochemistry/ Imaging	✓		Autopsy	✓	1
139	Overexpression of microRNA-30a contributes to the development of aortic dissection by targeting lysyl oxidase	The Journal of Thoracic and Cardiovascular Surgery 2017	Surgery	Yu, Yang; Shi, Emyi; Gu, Tianxiang; Tang, Rui; Gao, Shilun; Wang, Yongchao; Liu, Hongbo	Biochemistry/ Imaging	✓	✓	Surgery		1

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**Table S1** | Summary data from all the manuscripts included in the review—*Continued*

140	Group X secretory phospholipase A2 augments angiotensin II-induced inflammatory responses and abdominal aortic aneurysm formation in apoE-deficient mice	Atherosclerosis 2011;214(1):58–64	Peripheral vascular disease	Zack, Melissa; Boyanovsky, Boris B.; Shridas, Preetha; Bailey, William; Forrest, Kathy; Howatt, Deborah A.; Gelb, Michael H.; de Beer, Frederick C.; Daugherty, Alan; Webb, Nancy R.	Biochemistry/ Imaging	✓	Archived pathology tissue	3
141	The expression of inhibitor of nuclear factor kappa-B kinase epsilon (IKKε) in human aortic aneurysm	Folia Morphologica 2017	Anatomy and morphology	Zhang, L.; Wang, L.; Chen, W.; Xu, Y.; Wang, L.; Iskandar, R.; Wang, Y.; Chen, X.	Biochemistry/ Imaging	✓	Surgery	1
142	Comparison of gene expression profiles in aortic dissection and normal human aortic tissues	Biomedical Reports 2016; 5(4):421–7		Zhang, L.; Yu, C.; Chang, Q.; Luo, X.; Qiu, J.; Liu, S.	Biochemistry	✓	Surgery	1
143	Notch signaling in descending thoracic aortic aneurysm and dissection	PLoS One 2012; 7(12):e52833	Multi-disciplinary sciences	Zou, Sili; Ren, Pingping; Nguyen, Mary; Coselli, Joseph S.; Shen, Ying H.; LeMaire, Scott A.	Biochemistry/ Imaging	✓	Surgery/ Transplant	1

