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Editorial

Readers' choice: Hot papers downloaded in 2006

The Editorial Team at *Cardiovascular Research* is always interested in exploring trends in the literature and finding out what topics are of current interest in cardiology and vascular biology. One way we do this is to occasionally monitor which articles published in *CVR* are most often downloaded as full-text papers. With an average of 50,000 requests for *CVR* titles per month in 2006, a figure that has increased almost threefold over the past 4 years, we are in a good position to analyze the data.

The most-downloaded review articles published in *Cardiovascular Research* in 2006 are shown in Table 1. The articles generating the greatest interest were those published in Spotlight Issues: the Spotlight on Matrix Metalloproteinases published in February [1,17], the Spotlight on Postconditioning published in May [7,10,16,20], and the Spotlight on Reactive Oxygen Species published in July [2–4,13–15]. In addition, articles in a Review Focus on caveolae received much attention [6,19].

Table 1
Most-downloaded review articles in 2006

	Article title [a]	Author(s)	Downloads [b]	Ref.
1	Structure and function of matrix metalloproteinases and TIMPs (S)	Nagase, H.; Visse, R.; Murphy, G.	2319	[1]
2	Redox signaling in angiogenesis: Role of NADPH oxidase (S)	Ushio-Fukai, M.	1766	[2]
3	Redox signaling in hypertension (S)	Paravicini, T.M.; Touyz, R.M.	1615	[3]
4	NADPH oxidases: New kids on the block (S)	Geiszt, M.	1512	[4]
5	Integrin signalling: The tug-of-war in heart hypertrophy	Brancaccio, M.; Hirsch, E.; Notte, A.; Selvetella, G.; Lembo, G.; Tarone, G.	1420	[5]
6	Caveolins and the regulation of endothelial nitric oxide synthase in the heart (RF)	Feron, O.; Balligand, J.L.	1279	[6]
7	Survival kinases in ischemic preconditioning and postconditioning (S)	Hausenloy, D.J.; Yellon, D.M.	1202	[7]
8	Heart muscle engineering: An update on cardiac muscle replacement therapy	Zimmermann, W.H.; Didie, M.; Doker, S.; Melnychenko, I.; Naito, H.; Rogge, C.; Tiburcy, M.; Eschenhagen, T.	1137	[8]
9	The ubiquitin-proteasome system: Focus on the heart	Zolk, O.; Schenke, C.; Sarikas, A.	1066	[9]
10	Postconditioning: Reduction of reperfusion-induced injury (S)	Zhao, Z.Q.; Vinten-Johansen, J.	1058	[10]
11	The role of natriuretic peptides in cardioprotection	Nishikimi, T.; Maeda, N.; Matsuoka, H.	1037	[11]
12	Biology of atherosclerotic plaques: What we are learning from proteomic analysis	Blanco-Colio, L.M.; Martin-Ventura, J.L.; Vivanco, F.; Michel, J.B.; Meilhac, O.; Egido, J.	1031	[12]
13	The role of oxidants and free radicals in reperfusion injury (S)	Zweier, J.L.; Talukder, M.A.H.	1023	[13]
14	The good, the bad and the ugly in oxygen-sensing: ROS, cytochromes and prolyl-hydroxylases (S)	Acker, T.; Fandrey, J.; Acker, H.	985	[14]
15	Reactive oxygen species signaling in vascular smooth muscle cells (S)	Clempus, R.E.; Griendling, K.K.	981	[15]
16	Preconditioning, postconditioning and their application to clinical cardiology (S)	Kloner, R.A.; Rezkalla, S.H.	953	[16]
17	Matrix metalloproteinases regulate migration, proliferation, and death of vascular smooth muscle cells by degrading matrix and non-matrix substrates (S)	Newby, A.C.	949	[17]
18	Statins in the treatment of chronic heart failure: Biological and clinical considerations	van der Harst, P.; Voors, A.A.; van Gilst, W.H.; Bohm, M.; van Veldhuisen, D.J.	927	[18]
19	Involvement of lipid rafts and caveolae in cardiac ion channel function (RF)	Maguy, A.; Hebert, T.E.; Nattel, S.	925	[19]
20	Mitochondria and ischemia-reperfusion injury of the heart: Fixing a hole (S)	Di Lisa, F.; Bernardi, P.	918	[20]

[a] (S) designates article that was a contribution to a Spotlight Issue; (RF) indicates Review Focus article.
[b] Refers to number of requests for full-text downloads during the first 6 months of online publication.

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Table 2
Most-downloaded original articles in 2006

	Article title [a]	Author(s)	Downloads [b]	Ref.
1	Bone marrow molecular alterations after myocardial infarction: Impact on endothelial progenitor cells	Thum, T.; Fraccarollo, D.; Galuppo, P.; Tsikas, D.; Frantz, S.; Ertl, G.; Bauersachs, J.	1171	[21]
2	Downregulated CD36 and oxLDL uptake and stimulated ABCA1/G1 and cholesterol efflux as anti-atherosclerotic mechanisms of interleukin-10	Rubic, T.; Lorenz, R.L.	1170	[22]
3	Adipokine resistin promotes in vitro angiogenesis of human endothelial cells	Mu, H.; Ohashi, R.; Yan, S.; Chai, H.; Yang, H.; Lin, P.; Yao, Q.; Chen, C.	1116	[23]
4	Resistin is secreted from macrophages in atheromas and promotes atherosclerosis	Jung, H.S.; Park, K.H.; Cho, Y.M.; Chung, S.S.; Cho, H.J.; Cho, S.Y.; Kim, S.J.; Kim, S.Y.; Lee, H.K.; Park, K.S.	971	[24]
5	The effects of mesenchymal stem cells transduced with Akt in a porcine myocardial infarction model	Lim, S.Y.; Kim, Y.S.; Ahn, Y.; Jeong, M.H.; Hong, M.H.; Joo, S.Y.; Nam, K.I.; Cho, J.G.; Kang, P.M.; Park, J.C.	930	[25]
6	Small interfering RNA knocks down heat shock factor-1 (HSF-1) and exacerbates pro-inflammatory activation of NF-κB and AP-1 in vascular smooth muscle cells	Chen, Y.; Currie, R.W.	890	[26]
7	Ischemic postconditioning protects remodeled myocardium via the PI3K-PKB/Akt reperfusion injury salvage kinase pathway	Zhu, M.; Feng, J.; Lucchinetti, E.; Fischer, G.; Xu, L.; Pedrazzini, T.; Schaub, M.C.; Zaugg, M.	822	[27]
8	Chemokines induce matrix metalloproteinase-2 through activation of epidermal growth factor receptor in arterial smooth muscle cells (S)	Kodali, R.; Hajjou, M.; Berman, A.B.; Bansal, M.B.; Zhang, S.; Pan, J.J.; Schecter, A.D.	813	[28]
9	Matrix metalloproteinase-2 and-9 are induced differently by doxorubicin in H9c2 cells: The role of MAP kinases and NAD(P)H oxidase (S)	Spallarossa, P.; Altieri, P.; Garibaldi, S.; Ghigliotti, G.; Barisione, C.; Manca, V.; Fabbi, P.; Ballestrero, A.; Brunelli, C.; Barsotti, A.	797	[29]
10	Bone marrow-derived cells contribute to infarct remodelling	Mollmann, H.; Nef, H.M.; Kostin, S.; von Kalle, C.; Pilz, I.; Weber, M.; Schaper, J.; Hamm, C.W.; Elsasser, A.	784	[30]
11	Reduction of inflammatory cytokine expression and oxidative damage by erythropoietin in chronic heart failure	Li, Y.; Takemura, G.; Okada, H.; Miyata, S.; Maruyama, R.; Li, L.; Higuchi, M.; Minatoguchi, S.; Fujiwara, T.; Fujiwara, H.	778	[31]
12	Novel Nox inhibitor VAS2870 attenuates PDGF-dependent smooth muscle cell chemotaxis, but not proliferation (S)	ten Freyhaus, H.; Huntgeburth, M.; Wingler, K.; Schnitker, J.; Baumer, A.T.; Vantler, M.; Bekhite, M.M.; Wartenberg, M.; Sauer, H.; Rosenkranz, S.	765	[32]
13	Telmisartan downregulates angiotensin II type 1 receptor through activation of peroxisome proliferator-activated receptor γ	Imayama, I.; Ichiki, T.; Inanaga, K.; Ohtsubo, H.; Fukuyama, K.; Ono, H.; Hashiguchi, Y.; Sunagawa, K.	756	[33]
14	Erythropoietin protects cardiomyocytes from apoptosis via up-regulation of endothelial nitric oxide synthase	Burger, D.; Lei, M.; Geoghegan-Morphet, N.; Lu, X.; Xenocostas, A.; Feng, Q.	742	[34]
15	Involvement of COX-2 in VEGF-induced angiogenesis via P38 and JNK pathways in vascular endothelial cells	Wu, G.; Luo, J.; Rana, J.S.; Laham, R.; Sellke, F.W.; Li, J.	739	[35]
16	IL-6 induces PI 3-kinase and nitric oxide-dependent protection and preserves mitochondrial function in cardiomyocytes	Smart, N.; Mojet, M.H.; Latchman, D.S.; Marber, M.S.; Duchen, M.R.; Heads, R.J.	710	[36]
17	Endoplasmic reticulum Ca^{2+} depletion induces endothelial cell apoptosis independently of caspase-12	Nakano, T.; Watanabe, H.; Ozeki, M.; Asai, M.; Katoh, H.; Satoh, H.; Hayashi, H.	709	[37]
18	Mitochondrial dysfunction as the cause of the failure to precondition the diabetic human myocardium	Hassouna, A.; Loubani, M.; Matata, B.M.; Fowler, A.; Standen, N.B.; Galinanes, M.	687	[38]
19	Red wine polyphenols prevent angiotensin II-induced hypertension and endothelial dysfunction in rats: Role of NADPH oxidase	Sarr, M.; Chataigneau, M.; Martins, S.; Schott, C.; El Bedoui, J.; Oak, M.H.; Muller, B.; Chataigneau, T.; Schini-Kerth, V.B.	681	[39]
20	PI 3-kinase regulates the mitochondrial transition pore in controlled reperfusion and postconditioning	Bopassa, J.C.; Ferrera, R.; Gateau-Roesch, O.; Couture-Lepetit, E.; Ovize, M.	670	[40]

[a] (S) designates article that was a contribution to a Spotlight Issue.
[b] Refers to number of requests for full-text downloads during the first 6 months of online publication.

Requests for original articles are perhaps even more indicative of an interest trend among our readers, as these papers span a wider range of topics. As can be seen in Table 2, two areas appear as foci of highest interest: atherosclerosis [22,24,26,28,32,33,39] and myocardial protection [25,27,30,31,34,36,38,40]. While the latter has been for a long time one of the areas receiving extensive coverage in this Journal, the large number of downloads of papers on atherosclerosis and vascular biology confirms that the Journal has become an equally good platform for papers dealing with vascular topics.

We surveyed the articles published in the Journal in 2006 by evaluating the sum of full-text downloads for each article over a 6-month period that included the first appearance online and the publication in print. Our analysis showed that the peak of downloading activity immediately follows the appearance of an article in the PubMed online platform (Fig. 1). Furthermore, at the cover date, signifying a paper's appearance in print and within a complete issue, the number of downloads is declining. These observations are not surprising if one considers how most readers search for articles of interest nowadays.

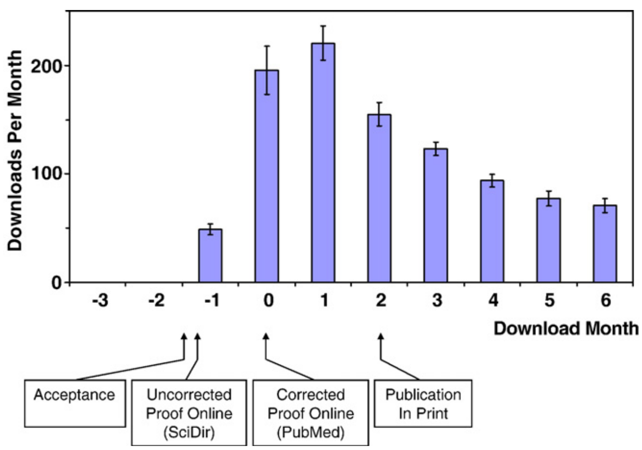

Fig. 1. Time course of monthly requests for the electronic full-text versions of the top-requested 20 original articles published in *Cardiovascular Research* in 2006. The month of a paper's appearance as a corrected proof in the Internet (for example, in PubMed) was set to "0" on the abscissa as a point of reference. SciDir refers to the online platform Science Direct. Mean requests per month ± SEM are shown.

As expected, the impact factor of CVR rose last year to 5.283, an all-time high for the Journal. In parallel, the immediacy index increased to 1.373. This latter figure is an expression of the rapidness of citation of a journal's articles; i.e. citation of papers in the same year as their date of publication. With citation of articles-in-press now possible by use of the DOI (digital object identifier), papers are getting read and cited even more rapidly.

In conclusion, *Cardiovascular Research* is a rapid journal: Rapid in review, rapid in online publishing, rapid in usage by its readers, and rapid in being cited.

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References

[1] Nagase H, Visse R, Murphy G. Structure and function of matrix metalloproteinases and TIMPs. Cardiovasc Res 2006;69:562–73.
[2] Ushio-Fukai M. Redox signaling in angiogenesis: Role of NADPH oxidase. Cardiovasc Res 2006;71:226–35.
[3] Paravicini TM, Touyz RM. Redox signaling in hypertension. Cardiovasc Res 2006;71:247–58.
[4] Geiszt M. NADPH oxidases: New kids on the block. Cardiovasc Res 2006;71:289–99.
[5] Brancaccio M, Hirsch E, Notte A, Selvetella G, Lembo G, Tarone G. Integrin signalling: The tug-of-war in heart hypertrophy. Cardiovasc Res 2006;70:422–33.
[6] Feron O, Balligand JL. Caveolins and the regulation of endothelial nitric oxide synthase in the heart. Cardiovasc Res 2006;69:788–97.
[7] Hausenloy DJ, Yellon DM. Survival kinases in ischemic preconditioning and postconditioning. Cardiovasc Res 2006;70:240–53.
[8] Zimmermann WH, Didie M, Doker S, Melnychenko I, Naito H, Rogge C, et al. Heart muscle engineering: An update on cardiac muscle replacement therapy. Cardiovasc Res 2006;71:419–29.
[9] Zolk O, Schenke C, Sarikas A. The ubiquitin-proteasome system: Focus on the heart. Cardiovasc Res 2006;70:410–21.
[10] Zhao ZQ, Vinten-Johansen J. Postconditioning: Reduction of reperfusion-induced injury. Cardiovasc Res 2006;70:200–11.
[11] Nishikimi T, Maeda N, Matsuoka H. The role of natriuretic peptides in cardioprotection. Cardiovasc Res 2006;69:318–28.
[12] Blanco-Colio LM, Martin-Ventura JL, Vivanco F, Michel JB, Meilhac O, Egido J. Biology of atherosclerotic plaques: What we are learning from proteomic analysis. Cardiovasc Res 2006;72:18–29.
[13] Zweier JL, Talukder MAH. The role of oxidants and free radicals in reperfusion injury. Cardiovasc Res 2006;70:181–90.
[14] Acker T, Fandrey J, Acker H. The good, the bad and the ugly in oxygen-sensing: ROS, cytochromes and prolyl-hydroxylases. Cardiovasc Res 2006;71:195–207.
[15] Clempus RE, Griendling KK. Reactive oxygen species signaling in vascular smooth muscle cells. Cardiovasc Res 2006;71:216–25.
[16] Kloner RA, Rezkalla SH. Preconditioning, postconditioning and their application to clinical cardiology. Cardiovasc Res 2006;70:297–307.
[17] Newby AC. Matrix metalloproteinases regulate migration, proliferation, and death of vascular smooth muscle cells by degrading matrix and non-matrix substrates. Cardiovasc Res 2006;69:614–24.
[18] van der Harst P, Voors AA, van Gilst WH, Bohm M, van Veldhuisen DJ. Statins in the treatment of chronic heart failure: biological and clinical considerations. Cardiovasc Res 2006;71:443–54.
[19] Maguy A, Hebert TE, Nattel S. Involvement of lipid rafts and caveolae in cardiac ion channel function. Cardiovasc Res 2006;69:798–807.
[20] Di Lisa F, Bernardi P. Mitochondria and ischemia-reperfusion injury of the heart: fixing a hole. Cardiovasc Res 2006;70:191–9.
[21] Thum T, Fraccarollo D, Galuppo P, Tsikas D, Frantz S, Ertl G, et al. Bone marrow molecular alterations after myocardial infarction: impact on endothelial progenitor cells. Cardiovasc Res 2006;70:50–60.
[22] Rubic T, Lorenz RL. Downregulated CD36 and oxLDL uptake and stimulated ABCA1/G1 and cholesterol efflux as anti-atherosclerotic mechanisms of interleukin-10. Cardiovasc Res 2006;69:527–35.
[23] Mu H, Ohashi R, Yan S, Chai H, Yang H, Lin P, et al. Adipokine resistin promotes in vitro angiogenesis of human endothelial cells. Cardiovasc Res 2006;70:146–57.
[24] Jung HS, Park KH, Cho YM, Chung SS, Cho HJ, Cho SY, et al. Resistin is secreted from macrophages in atheromas and promotes atherosclerosis. Cardiovasc Res 2006;69:76–85.
[25] Lim SY, Kim YS, Ahn Y, Jeong MH, Hong MH, Joo SY, et al. The effects of mesenchymal stem cells transduced with Akt in a porcine myocardial infarction model. Cardiovasc Res 2006;70:530–42.
[26] Chen Y, Currie RW. Small interfering RNA knocks down heat shock factor-1 (HSF-1) and exacerbates pro-inflammatory activation of NF-κB and AP-1 in vascular smooth muscle cells. Cardiovasc Res 2006;69:66–75.
[27] Zhu M, Feng J, Lucchinetti E, Fischer G, Xu L, Pedrazzini T, et al. Ischemic postconditioning protects remodeled myocardium via the PI3K-PKB/Akt reperfusion injury salvage kinase pathway. Cardiovasc Res 2006;72:152–62.
[28] Kodali R, Hajjou M, Berman AB, Bansal MB, Zhang S, Pan JJ, et al. Chemokines induce matrix metalloproteinase-2 through activation of epidermal growth factor receptor in arterial smooth muscle cells. Cardiovasc Res 2006;69:706–15.
[29] Spallarossa P, Altieri P, Garibaldi S, Ghigliotti G, Barisione C, Manca V, et al. Matrix metalloproteinase-2 and -9 are induced differently by

doxorubicin in H9c2 cells: The role of MAP kinases and NAD(P)H oxidase. Cardiovasc Res 2006;69:736–45.
[30] Mollmann H, Nef HM, Kostin S, von Kalle C, Pilz I, Weber M, et al. Bone marrow-derived cells contribute to infarct remodelling. Cardiovasc Res 2006;71:661–71.
[31] Li Y, Takemura G, Okada H, Miyata S, Maruyama R, Li L, et al. Reduction of inflammatory cytokine expression and oxidative damage by erythropoietin in chronic heart failure. Cardiovasc Res 2006;71:684–94.
[32] ten Freyhaus H, Huntgeburth M, Wingler K, Schnitker J, Baumer AT, Vantler M, et al. Novel Nox inhibitor VAS2870 attenuates PDGF-dependent smooth muscle cell chemotaxis, but not proliferation. Cardiovasc Res 2006;71:331–41.
[33] Imayama I, Ichiki T, Inanaga K, Ohtsubo H, Fukuyama K, Ono H, et al. Telmisartan downregulates angiotensin II type 1 receptor through activation of peroxisome proliferator-activated receptor γ. Cardiovasc Res 2006;72:184–90.
[34] Burger D, Lei M, Geoghegan-Morphet N, Lu X, Xenocostas A, Feng Q. Erythropoietin protects cardiomyocytes from apoptosis via up-regulation of endothelial nitric oxide synthase. Cardiovasc Res 2006;72:51–9.
[35] Wu G, Luo J, Rana JS, Laham R, Sellke FW, Li J. Involvement of COX-2 in VEGF-induced angiogenesis via P38 and JNK pathways in vascular endothelial cells. Cardiovasc Res 2006;69:512–9.
[36] Smart N, Mojet MH, Latchman DS, Marber MS, Duchen MR, Heads RJ. IL-6 induces PI 3-kinase and nitric oxide-dependent protection and preserves mitochondrial function in cardiomyocytes. Cardiovasc Res 2006;69:164–77.
[37] Nakano T, Watanabe H, Ozeki M, Asai M, Katoh H, Satoh H, et al. Endoplasmic reticulum Ca^{2+} depletion induces endothelial cell apoptosis independently of caspase-12. Cardiovasc Res 2006;69:908–15.
[38] Hassouna A, Loubani M, Matata BM, Fowler A, Standen NB, Galinanes M. Mitochondrial dysfunction as the cause of the failure to precondition the diabetic human myocardium. Cardiovasc Res 2006;69:450–8.
[39] Sarr M, Chataigneau M, Martins S, Schott C, El Bedoui J, Oak MH, Muller B, et al. Red wine polyphenols prevent angiotensin II-induced hypertension and endothelial dysfunction in rats: Role of NADPH oxidase. Cardiovasc Res 2006;71:794–802.
[40] Bopassa JC, Ferrera R, Gateau-Roesch O, Couture-Lepetit E, Ovize M. PI 3-kinase regulates the mitochondrial transition pore in controlled reperfusion and postconditioning. Cardiovasc Res 2006;69:178–85.