

## ESPS PEER-REVIEW REPORT

**Name of journal:** World Journal of Cardiology

**ESPS manuscript NO:** 22768

**Title:** Bicuspid Aortic Valve Hemodynamics Does Not Promote Remodeling in Porcine Aortic Wall Concavity

**Reviewer's code:** 00504232

**Reviewer's country:** Italy

**Science editor:** Jin-Xin Kong

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CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input checked="" type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> The same title	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> Duplicate publication	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade D: Rejected	<input type="checkbox"/> Plagiarism	<input type="checkbox"/> Minor revision
<input type="checkbox"/> Grade E: Poor		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Major revision
		BPG Search:	
		<input type="checkbox"/> The same title	
		<input type="checkbox"/> Duplicate publication	
		<input type="checkbox"/> Plagiarism	
		<input checked="" type="checkbox"/> No	

## COMMENTS TO AUTHORS

The manuscript by S Atkins et al. proposes an ex-vivo model of wall shear stress applied to the lesser curvature (concavity) of porcine thoracic aorta. The ex-vivo model reproduces in a bioreactor the shear stress generated by a TAV and by a LR-BAV, with the aim of dissecting the role played by this single local hemodynamic factor on vascular wall remodeling of aortic concavity. This model excludes the influence of any genetic alteration and any comorbidities. The paper is clear, concise and well written, and provide some additional information about the etiology of BAV aortopathy, underlying the key role of hemodynamics in BAV-related aortopathy. The key of the paper is the comparison between the data obtained in porcine aortic concavity versus the data obtained in porcine aortic convexity, published some months ago in paper with the same experimental design, methods and targets (Atkins SK et al., Biomech Model Mechanobiol 2014). It would have been reasonable to collect the data obtained in aortic concavity and convexity in a single paper, and not refer repeatedly to the previously published paper. This would also have allowed a direct comparison of expression and activity of MMP-2 and MMP-9 between concavity and convexity of the same animals, submitted



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to a TAV or BAV-like wall shear stress. Also, the application of the findings to a clinical setting could be quite limited, as several other factors, including local pressure and stretch, are not reproduced by the bioreactor. Another main concern is the limited number of samples used for each test and experimental group ( $n=3$ , statistics paragraph, methods section), especially considering the high standard deviation obtained and represented in graphs in fig. 2 and 3. The use of confocal microscopy could allow a more quantitative analysis of MMP-2 and MMP-9 expression in aortic cross-sections.