although it is used differently) but requires the single ventricle to pump significantly more volume to maintain the same cardiac output, thus decreasing net cardiac output. The theoretic gains in pulsatility and pulmonary vascular resistance must be balanced by the risks of low cardiac output, ventriculotomy, and thrombosis related to the valves in the pulmonary circuit. Nevertheless, these are just theoretic predictions, and detailed in vitro and in vivo studies are necessary to assess the true efficacy of this and other novel solutions. Venous and mechanical supports that provide an additional energy source are being studied through progressing animal models and may offer the best hope for some patients.⁵

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THE MURINE MONOCLONAL ANTIBODY

ANTI-CYTOKERATIN CAM 5.2

IS SPECIFIC FOR

INTRACELLULAR

CYTOKERATIN 8, NOT

CYTOKERATIN 18

To the Editor:

We read with great interest the contribution by Grotenhuis and colleagues regarding the article entitled "The sentinel node concept in adenocarcinomas of the distal esophagus and gastroesophageal junction."¹ However, the authors might have inadvertently annotated the NCL 5D3 clone to be the source of the murine monoclonal antibody CAM 5.2 and unsuitably suggested CAM 5.2 to be specific to cytokeratins 8 and 18 in their experiment as well.¹

We would like to comment and clarify that anti-cytokeratin CAM 5.2 was different from cytokeratin 8/18 monoclonal antibody. Monoclonal antibody to cytokeratin 8/18, instead of anti-cytokeratin CAM 5.2, was originally developed and manufactured by Novocastra Laboratories Ltd (Newcastle Upton Tyne, United Kingdom) using the brand Novocastra. The company grew and in 2003 was integrated into Vision Biosystems (Wetzlar, Germany). Today, Novocastra has become an important part of the overall histology range of Leica Microsystems' Biosystems Division through this definitive merger.

Therefore, monoclonal antibody to cytokeratin 8/18 is produced by Leica Microsystems' Biosystems Division, which is derived from the 5D3 clone.

This clone reacts with human cytokeratin-intermediate filament proteins at 52.5 and 45 kd, which are identified as cytokeratins 8 and 18, respectively.² On the other hand, anti-cytokeratin CAM 5.2 reagent is produced by Becton Dickinson Biosciences (Franklin Lakes, NJ) and is derived from the clone CAM 5.2. This clone reacts with human cytokeratin-intermediate filament proteins at 48 and 52 kd, which are identified as cytokeratins 7 and 8, respectively.³ In addition, Becton Dickinson Biosciences (1977) revised the data sheet for anti-cytokeratin CAM 5.2 to have a primary reactivity with cytokeratin 8 and, in addition, a weaker but distinct reactivity with cytokeratin 7. The data sheet also shows that there is no reactivity with cytokeratins 18 or 19. As a result, CAM 5.2 is not synonymous with cytokeratins 8 and 18.⁴ We concluded that the murine monoclonal antibody CAM 5.2 will not be specific for intracellular cytokeratins 8 and 18.

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Reply to the Editor:

We thank our colleagues Cheng and associates for their commentary with regard to our recently published article, "The Sentinel Node Concept in Adenocarcinomas of the Distal Esophagus and Gastroesophageal Junction."¹ In this study, we used the widely recognized immunohistochemical assay in which antibodies against epithelial-cell proteins are used to detect small clusters of tumor cells in histologically node-negative lymph nodes of patients with esophageal adenocarcinoma. Yao and Han claim that the monoclonal antibody against cytokeratin 8 and 18 (clone NCL-5D3) that we used in the present study should not be mistaken with the CAM5.2 antibody (clone CAM5.2) that appears to be specific for cytokeratin 7 and 8. In our article, we stated that the used antibody CAM 5.2 is specific for intracellular cytokeratin 8 and 18, referring to the original paper of Makin, Bobrow, and Bodmer,² in which it is claimed that (at that time newly developed) antibody CAM5.2 identifies the lower molecular weight cytokeratins (cytokeratin 8, 18 and 19). Other studies that investigated the presence and relevance of micrometastases or isolated tumor cells by using antibody CAM5.2 have also referred to this article.³ However, over the last years, companies producing these antibodies

have changed their products and further investigated the corresponding specificity in reactivity against certain cytokeratins, as pointed out by Yao and Han. Therefore, their statement that antibody CAM5.2 is not specific for intracellular cytokeratin 8 and 18 is correct. Nevertheless, this finding does not affect the conclusions of our study. The presence of cytokeratin 8 and/or 18 (which are both expressed in esophageal adenocarcinoma⁴) as detected with the antibody used in our study (clone NCL-5D3) indicates epithelial cell deposits in lymphoid tissue. Therefore, these cytokeratin deposits will still imply the presence of micrometastatic disease.

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ANGIOGENESIS AND SURGICAL OR ENDOVASCULAR ENHANCEMENT OF NONCORONARY COLLATERAL CIRCULATION: A NEW RESEARCH FIELD

To the Editor:

We read with great interest the article by Atluri and colleagues,¹ and we

congratulate them for their experiments with myocardial perfusion and contractility improvement using a laser transmyocardial approach. We agree with the authors that the problem with myocardial revascularization in patients who might not benefit from conventional procedures still demands investigative efforts. This was the genesis of a research program we began at Laval University in Quebec and that we are going to start in Europe at Université Paris Sud. This program is aimed at the enhancement of noncoronary collateral circulation (NCCC). Our animal models are dogs (Canada) and pigs (France).

NCCC is a topic that is virtually ignored, with very few publications in existence. This is surprising, considering that it is not rare to find evidence of NCCC, such as during coronary bypass surgery when arterial blood flow comes from the coronary ostia during valve replacement surgery or from the incised coronary artery, despite adequate aortic crossclamping and venting. NCCC consists of a network of small channels that come from mediastinal, bronchial, and pericardial vessels and that enter the heart through the pericardial reflections surrounding the pulmonary and systemic veins, as well as through the vasa vasorum of the aorta and pulmonary artery leading to and from the myocardium. Our studies are premised on the belief that this network is bigger than generally thought and that it might play a role, if adequately enhanced, as an alternative means of myocardial blood supply. We also believe that the normal ventricular function sometimes seen in patients with occlusion of the 3 major coronary vessels can be evidence of myocardial nourishment related to such a collateral source. Previous studies² have shown that vascular connections exist between the internal thoracic arteries (ITAs) and myocardium and that surgical bilateral ligation of the ITAs creates a local hypertensive status, increasing the perfusion pressure within the channels leading to the heart.³