

October 5, 2007

Mail Stop 6010

Richard Randall
President and Chief Executive Officer
TranS1, Inc.
411 Landmark Drive
Wilmington, NC 28412-6303

**Re: TranS1, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed September 28, 2007
File No. 333-144802**

Dear Mr. Randall:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

AxiaLIF Clinical Data Summary, page 54

1. We note your new disclosures on pages 55 and 56 that “one of the surgeons participating in [each of the two retrospective studies] holds options to purchase shares of your common stock.” Please explain when these options were granted, the timing and purpose of the grant and whether the grant relates in any material respect to the surgeons’ role in these studies. Also identify the specific role of the surgeon, such as lead investigator, in these studies.

Short-Term Incentive Program, page 72

2. Please explain why no weight has been assigned to your 2007 corporate objectives, when it appears that you have assigned weights to past corporate objectives and current personal objectives.

3. We note your revised disclosure in response to prior comment 6. Please expand to disclose with specificity all targets, milestones and objectives related to each 2006 and 2007 personal and corporate objective. Please provide such disclosure or, alternatively, tell us why you believe that the disclosure of such information would result in competitive harm such that the information could be excluded under instruction 4 to Item 402(b). We may have further comments after we receive your response.
4. As a related matter, we note your disclosure on page 73 that your compensation committee believes achievement of the 2007 corporate objectives will be challenging. In the event that it is appropriate to omit the specific target levels with respect to corporate and personal objectives, please expand to describe how difficult it will be for each executive to achieve the individual target levels referenced in your disclosure.
5. We note your disclosure on page 73 that Mr. Randall will not be eligible to receive a bonus for fiscal year 2007 if the corporate objective relating to revenue is not achieved. Please expand to discuss whether achievement of this objective automatically entitles Mr. Randall to the entire target bonus disclosed on page 74. If so, describe your reasons for tying Mr. Randall's bonus solely to the revenue target. If not, describe how the other corporate objectives referenced on page 73 relate to the amount of Mr. Randall's bonus. For example, will these other objectives be considered only if the revenue target is achieved and, if so, to what extent?

Report of Independent Registered Accounting Firm, page F-2

6. Upon consummation of the reverse stock-split transaction and prior to the planned effectiveness of this public offering, please have your auditor revise its report to remove the explanatory paragraph at the top of the page and to reflect the appropriate report date as appropriate. In this regard, please also file an updated consent with the pre-effective amendment.

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As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

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We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact at David Burton at (202) 551-3626 or Kevin Vaughn, Accounting Branch Chief, at (202) 551-3643 if you have questions regarding comments on the financial statements and related matters. Please contact Geoffrey Kruczek at (202) 551-3641 or me at (202) 551-3800 with any other questions.

Sincerely,

Peggy Fisher
Assistant Director

cc (via fax): Bruce Feuchter, Esq.—Stradling Yocca Carlson & Rauth
Michael A. Hedge, Esq.—Stradling Yocca Carlson & Rauth