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Editor's Note: The accuracy of reference listings is important for investigators and clinicians, and no less so in the online era. In *Clinical Chemistry Online,* references are linked to the full text of cited articles or to their abstracts at Medline. This linking requires accurate citations.

I examined the reference linking in the first 21 pieces in the December 1999 issue of *Clinical Chemistry* (the issue studied by Siebers) at www.clinchem.org. Among 440 references to articles in journals that are indexed at Medline, 409 (93%) were linked to full text of the articles or to Medline entries. The remaining 7% that were not linked presumably represent a subset of the 25% of articles in which Siebers found some errors in the citation.

The author of the Letter above examined the same online issue for us. He reports that references were not linked when they had errors in the year, volume number, first page number, journal name (or its abbreviation), or name of the first author. References that were linked included references with errors in co-authors' names or ending page numbers, spelling errors in the title, simple spelling errors of the first author's name, transpositions of authors' names, and omissions of authors' initials. This information sheds additional light on the types of errors that were the most common.

Authors' errors in references should become exceedingly rare with the current availability of programs that import citations directly from Medline. We encourage authors to avail themselves of these tools (which also save hours in manuscript preparation). Citation errors are glaringly obvious in the online journal. In the near future, we hope to provide additional electronic tools to help authors to identify errors in their reference listings. It will remain the author's responsibility to the community to check the accuracy of the references. We cannot know the references that the author has in mind.

—DB

Prostaglandin D Synthase Does Not Produce Prostate-specific Antigen Cross-Reactivity in Renal Cell Carcinoma

To the Editor:

Immunoreactive prostate-specific antigen (PSA) has been detected in the sera of female and male renal cell carcinoma (RCC) patients in several studies *(1–3)*. These measurements were attributed to the tumor because PSA reverted to undetectable concentrations after nephrectomy. However, attempts to definitively ascribe this increase to PSA were not successful either by immunohistochemistry with PSA monoclonal antibodies *(1, 2)* or by amplification of PSA by reverse transcription-PCR (RT-PCR) *(3)*, suggesting cross-reaction with a PSA-like protein. Prostaglandin D synthase (PGDS) in amniotic fluid has been found to cross-react with a PSA polyclonal antibody, but not with PSA monoclonal antibodies *(4)*. PGDS is present in the kidney *(5)* and is increased in the serum of patients with renal failure *(6, 7)*. Because the Chiron PSA immunoassay (ACS:180) used in our original study *(3)* utilizes a polyclonal antibody, albeit immunopurified, we investigated whether PGDS could be responsible for the increased concentrations of PSA detected in RCC patients.

RNA was extracted from six female and six male tumor samples and from nondiseased kidney tissue adjacent to the tumor. A 573-bp fragment of PGDS was amplified by RT-PCR. Southern blot hybridization and DNA sequencing of the PCR product confirmed the presence of PGDS. PGDS was expressed in both the nondiseased kidney samples adjacent to the tumor and in most tumor samples, but was not up-regulated in the tumor (Fig. 1).

Serum from the six female RCC patients was also assayed for PSA, using the ACS:180 assay and the ultrasensitive PSA immunofluorometric assay developed by Yu and Diamandis *(8)*, and for PGDS, using the immunoassay developed by Melegos et al. *(9)*. The results for these six

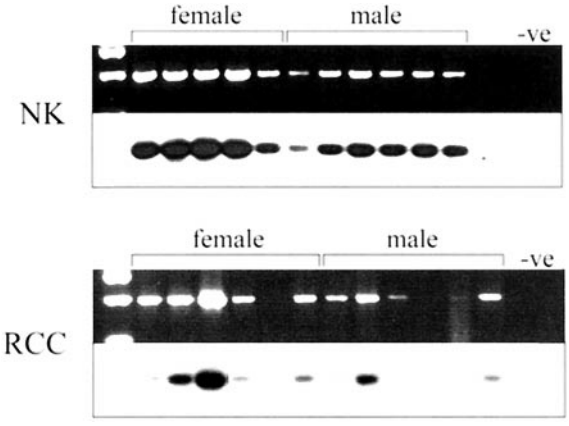

Fig. 1. RT-PCR and Southern blot hybridization of PGDS expression in nondiseased kidney tissue adjacent to the tumor (NK; *top*) and RCC tissue from 6 female (5 NK and 6 RCC tissue samples, respectively) and 6 male patients with RCC (*bottom*).

The DNA markers (*lane 1*, marker IX; Roche) and the negative control (*lane -ve*, no cDNA) are also shown.

patients, respectively, were as follows: PSA (ACS:180), 0.89, 0.54, 0.39, 0.27, 0.26, and 0.15 μg/L (concentrations in healthy females were undetectable at <0.04 μg/L); PSA (Yu assay), undetectable; PGDS, 798, 281, 294, 480, 366, and 705 mg/L. There was no correlation between the serum samples that exhibited the highest PSA concentrations and those with higher PGDS. In fact, the PGDS concentrations, although variable, were all within the reference interval. Of interest was the inability of the monoclonal-based Yu assay to detect PSA.

From these preliminary data, it appears that PGDS expression is not increased in RCC and that PGDS is unlikely to be the source of the cross-reacting antigen detected previously in the serum of women with RCC. In keeping with these findings, we have determined that PGDS does not cross-react with several commercially available PSA antibodies and assay systems (data not shown). Although PSA could not be detected here with a more specific and sensitive PSA assay, PSA expression was detected recently in some RCC cell lines *(10)* and a cDNA library *(11)*. These findings are yet to be extrapolated to human tissue. Other potential PSA-related antigens are currently being examined as candidates for the cross-reacting protein.

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Plasma Cardiac Troponin Concentrations after Extreme Exercise

To the Editor:

The New Zealand Ironman competition is an international ultradistance triathlon in which each athlete swims 3.8 km, cycles 180 km, and runs 42.2 km on the same day, completing the event in a time ranging from 9 to 16 h. In 1998, the race was held on March 15. A summary of the medical complications of the race and their treatment has been published separately *(1)*. During and immediately after the race, 134 of the 650 starting athletes presented to the race medical facility for advice and treatment. Of these, 64 underwent venipuncture for measurement of plasma electrolytes because of clinical suspicion of acute hyponatremia *(2)*. The residual blood from these tests was used in the study reported here.

Athletes withdrew from the race because of injury or exhaustion when necessary. Those who presented for medical treatment were asked for informed consent, either at presenta-