Letters to the Editor


Letter

We read with great interest the article by Melana et al. (1). They investigated the effect of AZT in four breast cancer cell lines, a T4 cell leukemia, and a normal breast cell line in vitro. They found that AZT inhibited the growth of all tumoral cell lines, colony formation in soft agar, and telomerase activity.

The authors cited our publication where we showed that AZT was preferentially incorporated into telomeric DNA and Z-DNA-containing regions (2) as well as the work from Strahl and Blackburn from 1996 (3) showing that AZT causes progressive telomere shortening in immortalized B and T human lymphocytic cell lines. However, they did not mention our previous work from 1995 (4). In that study, we demonstrated, for the first time, that preferential incorporation of AZT into telomeric DNA of Chinese hamster ovary cells was mediated by telomerase. In that contribution, we quantitatively compared the amount of tritiated AZT associated to telomeric and nontelomeric sequences of Chinese hamster ovary cell DNA. Radioactivity associated with each fraction revealed a threefold increase in AZT incorporated in the telomeric fraction compared with the nontelomeric fraction. No preferential telomeric binding was detected for tritiated thymidine or tritiated 5′ bromodeoxyuridine in similar experiments. Furthermore, in our last contribution (5, 6), we showed the shortening of telomeric sequences of HeLa cells treated with 800 μM AZT for 15 passages. The shortened telomeric repeats did not elongate after culturing without AZT for an additional 25 passages, demonstrating that telomere shortening by AZT is irreversible. The failure to mention our work from 1995 (4) and 1996 (5) does not alter the results demonstrated by Melana et al., but we feel that these studies are pertinent to the discussion of their findings. Besides our results further emphasize their conclusion that AZT can be used as an antitumor agent with antitelomerase activity.

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References


Reply

We thank Drs. Olivero and Gomez for their comments (1). Drs. Olivero and Poirier’s (2) seminal work clearly established that AZT was preferentially incorporated into telomeric DNA and Z-DNA-containing regions of Chinese hamster ovary cells. The later publication of Gomez et al. (3) reiterated the same point using different technology.

We are familiar with and interested in their abstract (4) and await its publication as a full contribution that can be critically studied and cited. We are pleased to learn of the paper in press by Gomez et al. (5) implying by its title that telomere shortening by AZT is irreversible. These several data support the assessment of AZT as an antitumor agent with antitelomerase activity.

We did cite Strahl and Blackburn (6), who reported the shortening of telomeres by AZT in immortalized cell lines.

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References


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1 The abbreviation used is: AZT, 3′-azido-3′-deoxythymidine.

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