Laminin Receptor 1: Can It Have a Role in Molecular Classification and Targeted Therapy of Endometrial Cancer?

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Endometrial carcinomas which account for more than 90% of uterine cancer cases are the most common gynecologic malignancies of the female reproductive organs. Thanks to the recent molecular studies, genomic alterations leading to the pathogenesis of these types of cancers have been revealed extensively. Nowadays, conventional pathologic diagnoses of them do not seem to be able to sufficiently guide the optimal clinical managements and therefore, efforts to develop a new classification system based on their molecular-morphologic features is highly encouraged (1). Publication of the Cancer Genome Atlas (TCGA) report on a genomic analysis of 373 endometrial carcinomas (2) forced the efforts to incorporate molecular testing into routine histologic evaluation (3). Although DNA polymerase epsilon, catalytic subunit (POLE), mismatch repair (MMR), and human epidermal growth factor receptor 2 (HER2) are highly evaluated molecular tests due to potential efficacy of immune checkpoint inhibitors and other targeted therapies, the data is not sufficient to attain a clear consensus on which tests to perform (1).

Laminin receptor 1 (LAMR) which is a multifunctional protein with important roles not only in tumor-cell migration and invasion but also in tumor-cell proliferation, survival, and protein translation, has been shown to be overexpressed in many malignant tumors including endometrial cancer (4-7). One of our recent studies revealed that LAMR may also have an important role in progression from premalignant to malignant state for endometrial lesions by showing disease progression–related gradual increment of LAMR expression in epithelial cytoplasm and basement membranes of hyperplastic endometrium with or without atypia and in cancer of endometrium (4). The results of Scheiman et al indicated that LAMR is also a potential target for gene therapy for tumor reduction and elimination, due to its regulatory role in many ways of tumor development. They also provided a novel mechanism for gene therapy in vivo, which can be used against LAMR (5).

As a conclusion, with ongoing efforts to describe the current molecular landscape of endometrial cancers, it has been realised that LAMR may offer some opportunities to select personalized therapies. Further studies are warranted to clarify whether this specific molecular alterations in LAMR expression may be incorporated into the current classification systems and molecularly targeted therapies of endometrial cancer with improved patient outcomes.

Ethical Issues
Not applicable.

Conflict of Interests
The author has no conflicts of interest to disclose.

References


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