

## Developmental expression of survivin during embryonic submandibular salivary gland development

### ABSTRACT

Our study demonstrates that survivin may play a crucial role in the survival of embryonic SMG epithelial cells, as it is known to promote survival through its pro-survival and anti-apoptotic properties. Furthermore, survivin protein localization into the nucleus is essential for cell cycle entry and preventing cellular death.

### INTRODUCTION

**Introduction** The submandibular gland is a small, elongated gland located behind the right ear. It is responsible for the production of salivary glands for the mouth. This gland is located in the submandibular region of the salivary gland.

The submandibular gland produces salivary glands in response to specific stimuli. These salivary glands secrete a secretion called salivary gland secretions that are secreted into the submandibular gland. The secretion is produced by the submandibular gland in response to the presence of external stimuli, such as a stimulus that triggers the secretion of salivary gland secretions.

Salivary gland secretions are secreted in response to stimulation of the salivary gland; for example, by a stimulation that activates Survivin, an IAP family protein that regulates programmed cell death, is highly expressed in embryonic tissues, cancer cells, and is undetectable in normal adult tissues. It has been shown that survivin is essential for development and has also been important for mitosis as it can prevent microvaginal degeneration. We hypothesized that survivin plays a crucial role as 'pro-survival and anti-apoptotic' molecule during embryonic ductal (and proacinar) formation"; in this paper we report the first observation of developmental changes in survivin expression and protein localization associated with embryonal lumen formation, expressed as transcripts and proteins from embryonic SMGs.

### CONCLUSION

**Remarkable conclusions** The role of apoptosis in the formation of embryonic SMG ductal and proacinar lumens is well-known, but there is limited information on which factor(s) mediate the anti-apoptosis/pro-survival signal. Not only did survivin protein increase during SMF lumina formation, however, it was hypothesized that it may be largely responsible for survival of epithelial cells.