

Connexins, E-Cadherin, Claudin-7 and  $\beta$ -catenin transiently form junctional nexuses during the post-natal mammary gland development

Elham Dianati, J  r  my Poiraud, Anne Weber-Ouellette, Isabelle Plante



PII: S0012-1606(16)30130-0  
DOI: <http://dx.doi.org/10.1016/j.ydbio.2016.06.011>  
Reference: YDBIO7156

To appear in: *Developmental Biology*

Received date: 6 March 2016  
Revised date: 15 May 2016  
Accepted date: 3 June 2016

Cite this article as: Elham Dianati, J  r  my Poiraud, Anne Weber-Ouellette and Isabelle Plante, Connexins, E-Cadherin, Claudin-7 and  $\beta$ -catenin transiently form junctional nexuses during the post-natal mammary gland development *Developmental Biology*, <http://dx.doi.org/10.1016/j.ydbio.2016.06.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

***Connexins, E-Cadherin, Claudin-7 and  $\beta$ -catenin transiently form junctional nexuses during the post-natal mammary gland development***

Elham Dianati, J  r  my Poiraud, Anne Weber-Ouellette, Isabelle Plante

INRS, Institut Armand-Frappier, Laval, Qu  bec, Canada

**ABSTRACT**

Gap junctions are intercellular channels made of connexins (Cx) that allow direct communication between adjacent cells. Modulation of Cxs has been associated with abnormal development and function of the mammary gland and breast cancer. However, the mechanisms underlying their expression during normal mammary gland are not yet known. Cxs interact with components of tight and adherens junctions. Thus, we hypothesized that the expression levels of Cxs vary during mammary gland development and are regulated through stage-dependent interactions with members of the tight and adherens junctions. Our specific objectives were to: *1) determine the expression of Cxs and tight and adherens junction proteins throughout development and 2) characterize Cxs interactions with components of tight and adherens junctions.* Murine mammary glands were sampled at various developmental stages (pre-pubescent to post-weaning). RT-qPCR and western-blot analyses demonstrated differential expression patterns for all gap (Cx43, Cx32, Cx26, Cx30), tight (Claudin-1, -3, -4, -7) and adherens ( $\beta$ -catenin, E- and P-cadherins) junctions throughout development. Interestingly, co-immunoprecipitation demonstrated interactions between these different types of junctions. Cx30 interacted with Cx26 just at the late pregnancy stage. While Cx43 showed a persistent interaction with  $\beta$ -catenin from virginity to post-weaning, its interactions with E-cadherin and Claudin-7 were transient. Cx32 interacted with Cx26, E-cadherin and  $\beta$ -catenin during lactation. Immunofluorescence results confirmed the existence of a junctional nexus that remodeled during mammary gland development. Together, our results confirm that the expression levels of Cxs vary concomitantly and that Cxs form junctional nexuses with tight and adherens junctions, suggesting the existence of common regulatory pathways.

**KEYWORDS**

Download English Version:

<https://daneshyari.com/en/article/10931084>

Download Persian Version:

<https://daneshyari.com/article/10931084>

[Daneshyari.com](https://daneshyari.com)