Clinicopathological factors associated with establishment of gastric cancer PDXs and cell lines.

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Patient-derived xenograft (PDX) models has been widely accepted as a suitable preclinical model. However, the number of PDX models as well as cell-lines from gastric cancer (GC) are limited. We ignited our project (DEF study) on May 2013 for establishing new gastric cancer (GC) PDX models and cell lines for accelerating the development of new therapeutics for GC. Two hundred and fifty (250) patients, including 233 patients underwent gastrectomy in National Cancer Center Hospital East (NCCHE) or National Cancer Center Hospital and 17 patients received cell-free and concentrated ascites reinfusion therapy (CART) at NCCHE, were enrolled

For establishing PDX models, we subcutaneously engrafted 232 surgically resected gastric cancer tissues into immune-deficient NOG mice and successfully established 35 gastric cancer PDX models. PDX-establishment rate was 15.1%, and differentiated type adenocarcinomas (DAs) were more effectively established than poorly differentiated type adenocarcinomas (PDAs). The histology of PDX resembled their primary tumors, and the concordance of histological differentiation grade between primary tumors and PDXs was significant.

Twenty-three (23) GC cell lines have been established from surgically resected primary or subsequently transplanted PDX tissues. Another 2 GC lines were established by cultivating primary GC tissues directly. Among 25 GC cell lines, 24 lines could develop subcutaneous tumors (CDXs) in SCID mice. In contrast to PDX, the concordance of histological differentiation grade between primary tumors and CDXs was not significant. In addition, we have established 7 GC cell lines from ascites from 17 patients received CART, and six of them could develop CDXs. All of the CDXs from CART cases showed PD histology.

As the results, we have established both PDX and Cell lines simultaneously from 21 patients, which allowed us to invest a direct histological comparison between primary, PDX, and CDX tumors. We will also discuss about lymphoproliferative lesions, most of which showed proliferation of B cell with various cytological atypia, encountered during the PDX establishment process.

[Awards or something, you can fill this part as you want]

2003 Uehar prize, Uehara Memorial Foundation
「Research for Carcinogenic Signal by BCL11B」

[References]

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