which forms the network for mineralization; osteopontin, which in its phosphorylated form prevents further crystal growth; bone sialoprotein, which mediates attachment of osteoblasts to bone matrix; dentin matrix protein 1, which promotes mineral formation and suppresses the motility of tumour cells; dentin sialophosphoprotein, which promotes the initial formation of apatite and later inhibits or slows crystal growth; matrix extracellular phosphoglycoprotein, which is a negative regulator of physiological mineralization; alkaline phosphatase, which enhances mineralization; inorganic pyrophosphate, which inhibits osteoblast mineralization, fetuin-A, which also inhibits mineralization; matrix gla protein, another inhibitor of mineralization; osteocalcin, which is up-regulated during bone formation and osteonectin, which is incorporated into the mineralized matrix. Based on this hypothesis, type II mammary microcalcification is an active cell-specific regulated process based on the formation of an osteomimetic niche. After formation, it impacts on the tumour microenvironment, possibly by affecting cell growth and by increasing cell motility (*e.g.* by up-regulating a variety of metalloproteinases). In conclusion, the identification of microcalcifications in the breast indicates the presence of a breast lesion. Today we know that the composition of microcalcifications is important and that it might represent a biologically significant feature of selected tumours. The most recent advances in the field focus on the ability of breast epithelial cells to generate minerals, a process reflecting their biological state. Furthermore, it appears that, once generated, microcalcifications interact with the tumour microenvironment with prognostic implications.

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TRANSLATIONAL NETWORK FOR PREDICTIVE, PREVENTIVE, PERSONALIZED AND PARTICIPATORY CANCER STUDY

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The war against cancer all over the world has not been won. Translational network together with system biology, bioinformatics and digital revolution are teaming up to make personalized medicine and therapy more and more perfect to a predictive, preventive, personalized and participatory health caring system. Taiwan, where cancer is a serious social concern and related researches are encouraged, is highly conserved in genetic background and the country is convenient in collecting all the related tissue samples and questionnaires. Terry Fox Cancer Research Lab in China Medical University located in central Taiwan has been devoted to translational studies in anti-cancer researche for years. The unique and common features of head and neck (oral and nasopharyngeal carcinoma), lung, breast, gastrointestinal (gastric, hepatocellular carcinoma, colorectal), urological (kidney, ureter, bladder and prostate) cancers, in addition to leukemia, pterygium, myoma and endometriosis are of our interest. (i) The biomarkers found from genomic and proteomic angles may play as predictive markers for diagnostic and prognostic characteristics in Taiwan population; (ii) The system biology from cell models may provide deep insights in carcinogenesis; (iii) Screening platforms using cells from tumor- and non-tumor- tissues of each cancer patient together with animal cancer models are established for personalized medicine and therapy examinations and, potentially, Traditional Chinese Medicine could be found in both the preventive and therapeutic designed modules; (iv) All the above methodologies are connected to each other for stratifying the cancer population into their distinct subtypes (for instance, triple negative breast cancer from breast cancer can still be divided into high-metastatic and low-metastatic subtypes) for a impedance match against proper drugs. In this way, researchers will back-up the doctors to provide the patients and their relatives with personalized anti-cancer approaches assessing the best wellness and quality of life. Thus, every member in the network is the key person to participate in the anti-cancer war. We sincerely look forward to your precious comment, discussion and cooperation.