INTRODUCTION

Bone metastases are incurable and cause significant morbidity in most cancer patients with advanced disease (1). In thoracic oncology, the incidence of bone metastases in non-small cell lung cancer (NSCLC) is 60% (2). Bone metastases from lung cancer may be detected in up to 85% of patients with bone metastases. Bone endpoints in thoracic oncology may represent a major target for thoracic oncology research (3).

MATERIALS AND METHODS

Human breast cancer cell lines BT-474 and MFM-223 and non-small cell lung cancer (NSCLC) cell lines NCI-H226-luc and NCI-H322 were used in this study (for cell details, see Table 1). Cancer cells were inoculated in the tibia of 5 to 6 weeks old female athymic nude mice (nu/nu). The inoculation procedure is described elsewhere (4). The inoculated cells were observed weekly for tumor development and the time of appearance was recorded (Figure 1B and Table 1).

RESULTS

Intratibial inoculation of NCI-H226-luc and NCI-H322 NSCLC cells induced tumor growth in bone (Figure 1C-D, Table 2). In intratibial inoculation of BT-474 breast cancer cells. This suggests that ERs and HER2+ expression in both tumor and bone cells has a crucial role in bone metastasis (5).

CONCLUSIONS

Four bone metastasis models representing different subtypes of breast and lung cancer were successfully established. Osteoblastic changes were observed already 2 weeks after intratibial inoculation in two of the BT-474 breast cancer bone metastasis model and NCI-H226-luc NSCLC lung cancer bone metastasis model. E2 supplementation altered the bone microenvironment and the crosstalk between tumor and bone, resulting in development of osteolytic instead of osteoblastic changes in response to intratibial inoculation of BT-474 breast cancer cells. This suggests that ERs expressed in both tumor and bone cells has a crucial role in bone metastasis (6).

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New models of breast and lung cancer bone metastases for preclinical efficacy testing

Mari I Suominen1, Urs B Hagemann1, Yvonne Kankk1, Jenni Bemoulli1, Kajla M Fagerlund2, Roger M Bjerke1, Jenny Karlsson1, Jussi M Hallen3, Alan Cuthbertson1, Hannu Wild1

1Pharmatest Services Ltd, Turku, Finland, 2Bayer AS, Oslo, Norway, 3Bayer Pharma AG, Berlin, Germany

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