Comparative Cytogenetics of Mouse and Human Lung Adenocarcinoma. Linda M. Sargent, Mang X. Ensell, Jamie R. Senft , David T. Lowry, Amy M. Jefferson, Michael L. Kashon, Tyson, Fred L., Steve H. Reynolds; National Institute of Occupational Safety and Health, Morgantown, WV 26505, National Institute of Environmental Health Sciences Research Triangle Park, NC 27709

Although lung cancer is the leading cause of cancer death in the United States, the genetic changes associated with progression of the disease are not well understood. As powerful tools to detect molecular changes associated with primary and invasive mouse lung adenocarcinoma cells, we used Spectral Karyotyping, mapping with fluorescently labeled genomic clones and comparative genomic hybridization on a BAC array to analyze 15 primary adenocarcinoma and 9 pairs of high and low invasive tumor cell cultures. Gain of entire copies of chromosomes 1, 2, 6, 12, 15 and 19 were observed. Loss of entire copies of chromosomes 7, 8, and 14 were significant in the primary tumor cell cultures. Loss of the distal portion and duplication of the proximal region of chromosome 4 were observed in the primary tumor cell cultures. Investigations of the minimal region of alteration of chromosome 4 by fluorescent in situ hybridization (FISH) and BAC array demonstrated the deletion of a 3 centimorgan region in the middle portion of the chromosome. In addition, FISH demonstrated a 20 centimorgan duplication on chromosome 4. The duplication of chromosome 1 and 15 were associated with the ability of cells to invade a gel matrix. Mapping with FISH and CGH array further narrowed the region of duplication of chromosome 1 to five centimorgans. The minimal region of chromosomal alteration of chromosomes 1, 2, 4, 6, 7, 8, 12 and 15 contain putative susceptibility loci for mouse lung cancer. These same linkage groups are altered in human lung cancer. In addition, the chromosomal loci associated with invasion are amplified in both mouse and human lung cancer. The alteration of the same linkage groups in mouse and human indicates that the mouse is a valid model for human lung adenocarcinoma.

Bennett, William D. (Bill) (CDC/NIOSH/EID)

From: Downey, Stacy M. (CDC/NIOSH/HELD)
Sent: Tuesday, May 06, 2008 2:31 PM
To: Bennett, William D. (Bill) (CDC/NIOSH/EID)
Cc: Downey, Stacy M. (CDC/NIOSH/HELD)
Subject: FW: Comparative cytogenetics of mouse and human lung adenocarcinoma

Attachments: Abstract 409, 2002, In Proceedings from 7th Worlds Congress on Advances in Oncology and 5th Internation Symposium Crete, Greece.doc

Hey Bill,

Does this work?

Thank you,
Stacy M. Downey
NIOSH/HELD/OD
EXT. 6076
http://hnio-mtn-web/held/Intranet/

From: Sargent, Linda Marie (CDC/NIOSH/HELD)
Sent: Tuesday, May 06, 2008 2:29 PM
To: Downey, Stacy M. (CDC/NIOSH/HELD); Cummins, Teresa (CDC/NIOSH/HELD)
Subject: RE: Comparative cytogenetics of mouse and human lung adenocarcinoma

Abstract 409,
02, In Proceed

Hi Stacy,

This is the abstract that I presented in Crete, Greece in 2002. I was chairman of that symposium for that meeting. If you would like, I can look for the abstract book from this meeting. I apologize for not having it handy. I don't keep them this long usually but I probably should. Sorry for not providing it right away but I have enclosed the abstract:

Sargent LM, Ensell MX, Senft JR, Lowry DT, Jefferson AM, Kashon ML, Tyson FL, Reynolds SH [2002]. Comparative cytogenetics of mouse and human lung adenocarcinoma. In: Program from 7th World Congress on Advances in Oncology and 5th International Symposium on Molecular Medicine. Crete, Greece: Hersonissos, Abstract 409.

From: Downey, Stacy M. (CDC/NIOSH/HELD)
Sent: Tuesday, May 06, 2008 1:45 PM
To: Sargent, Linda Marie (CDC/NIOSH/HELD)
Subject: RE: Comparative cytogenetics of mouse and human lung adenocarcinoma

Yes should be 2002 not 2202. Sorry

Thank you,
Stacy M. Downey
NIOSH/HELD/OD
EXT. 6076
http://hnio-mtn-web/held/Intranet/

From: Sargent, Linda Marie (CDC/NIOSH/HELD)
Sent: Tuesday, May 06, 2008 1:44 PM
To: Downey, Stacy M. (CDC/NIOSH/HELD)
Subject: RE: Comparative cytogenetics of mouse and human lung adenocarcinoma

Hi Stacy,
I will look for this one. It is 2002 or at least I think so.
Linda

From: Downey, Stacy M. (CDC/NIOSH/HELD)
Sent: Tuesday, May 06, 2008 1:28 PM
To: Cummins, Teresa (CDC/NIOSH/HELD); Sargent, Linda Marie (CDC/NIOSH/HELD)
Subject: FW: Comparative cytogenetics of mouse and human lung adenocarcinoma
Importance: High

Looks like the one you provided me was for 2008. The one below, that Bill still needs, is from 2202. Would you happen to have a copy of that one?

Thank you,
Stacy M. Downey
NIOSH/HELD/OD
EXT. 6076
http://hnio-mtn-web/held/Intranet/

From: Bennett, William D. (Bill) (CDC/NIOSH/EID)
Sent: Wednesday, April 30, 2008 3:47 PM
To: Downey, Stacy M. (CDC/NIOSH/HELD)
Subject: Comparative cytogenetics of mouse and human lung adenocarcinoma

Your penalty for doing such a good job with the last one is that I have another one. If you have a copy of this one in your files I would certainly appreciate it if you could send in along too.

Sargent LM, Ensell MX, Senft JR, Lowry DT, Jefferson AM, Kashon ML, Tyson FL, Reynolds SH [2002]. Comparative cytogenetics of mouse and human lung adenocarcinoma. In: Program from 7th World Congress on Advances in Oncology and 5th International Symposium on Molecular Medicine. Crete, Greece: Hersonissos, Abstract 409.