PANCREATIC CANCER NEWS & UPDATES – MARCH 2012

PANCREATIC CANCER ACTION NETWORK AND COMMUNITY NEWS

More than $3.4 million in research grants awarded
http://www.pancan.org/section_research/research_grants_program/grants_awarded/by_year/2012/index.php

2012 grantees press release:

Pathway to Leadership grants press release:

Fourteen research grants for over $3.4 million have been awarded to highly deserving scientists throughout the country. The new grantees’ term will begin July 1.

Share your federal funding experiences: Help our advocacy efforts
http://www.pancan.org/section_research/resources_for_scientists/form_funding_experiences.php

Have you struggled to receive grants from the NCI or other federal institutions? Have you been successful? We’re looking for information to help us understand what is working well for pancreatic cancer researchers and what could be improved (including, but not limited to, funding levels). We will use this information in our public policy efforts. Please click above and share your stories (they can be submitted anonymously).

Support of the Cancer Genome Atlas Program (TCGA): Funding opportunity
http://www.fdbdo.com/s12-335/

Financial support is available for submissions to the TCGA pancreas project. Please see the note from Kenna Shaw, PhD of the TCGA Program Office:

“Because of the poor prognosis and overall public health impact, pancreatic ductal adenocarcinoma has been selected to be studied by TCGA. However, the pancreatic cancer project might end before it even begins unless more collaborators provide tissue samples. The collapse of this research project would be a lost opportunity for the pancreatic cancer community ... If you have frozen, untreated samples in your tissue bank accompanied by blood, please help by providing them, either retrospectively or prospectively, to TCGA.”

AACR Special Conference – Pancreatic Cancer: Progress and Challenges – registration is open

The first AACR special conference on pancreatic cancer will take place June 18-21, 2012 at the Hyatt Regency Lake Tahoe. Registration is now open. The deadline for abstract submission and award application was Wednesday, April 11, and advance registration closes on Monday, May 7.
Koch Institute, Dana-Farber/Harvard Cancer Center announce launch of 'Bridge Project'
http://web.mit.edu/newsoffice/2012/koch-df-hcc-bridge-project-0306.html

The Bridge Project is designed to support research aimed to attack the most lethal types of cancer. Boston’s two NCI-designated cancer centers are collaborating towards this shared goal. Three of the four teams receiving funding in the first round are focused on pancreatic cancer, with one team co-led by Hidde Ploegh, PhD (2011 Kovler Innovative Grant).

Pancreatic cancer researcher Tony Hollingsworth, receives top research award
http://app1.unmc.edu/PublicAffairs/TodaySite/newsreleases/view_t1.cfm?match=9193

Tony Hollingsworth, PhD (Scientific Advisory Board) was named the University of Nebraska Medical Center’s sixth Scientist Laureate, the highest honor bestowed upon researchers at that institution. The award recognizes researchers who have been among the most productive in their field in a five-year period. Congratulations, Dr. Hollingsworth!

Hopkins surgeon performs 2,000th Whipple

Dr. John Cameron at Johns Hopkins performed his 2,000th Whipple surgery in March. Dr. Cameron is extremely well respected in the community, and has trained many surgeons to successfully and safely perform this complex and potentially life-saving surgery.

NCKU signs MOU with OSU on cancer research

National Cheng Kung University (NCKU) in Taiwan signed a memorandum of understanding (MOU) with Ohio State University (OSU) College of Pharmacy to enhance its international academic cooperation and to improve the clinical research on pancreatic cancer.

BIOLOGY OF CANCER

Vesicular stomatitis virus as an oncolytic agent against pancreatic ductal adenocarcinoma

Pinku Mukherjee, PhD (2007 Pilot Grant) contributed to this Journal of Virology paper that picked up some media attention (e.g., http://medicalxpress.com/news/2012-03-viruses-pancreatic-tumors-preclinical.html). Vesicular stomatitis virus (VSV) was tested as a potential oncolytic virus in various pancreatic cancer cell lines, and compared to other types of viruses. Although VSV was found to have the most oncolytic activity among the viruses examined, there were some cell lines that exhibited resistance. Further testing will be necessary to evaluate whether to pursue this treatment strategy.

Metformin and cancer stem cells: old drug, new targets

This Perspective article in Cancer Prevention Research is coauthored by Diane Simeone, MD (2010 The Randy Pausch Family Innovative Grant and member, Scientific Advisory Board), in response to http://www.ncbi.nlm.nih.gov/pubmed/22086681 (see below). Drs. Bednar and Simeone discuss the stem cell hypothesis of cancer and ways to therapeutically target that population of cells.
Metformin inhibits cell proliferation, migration and invasion by attenuating CSC function
(See Perspective above)
A team of researchers at the Karmanos Cancer Institute investigated the mechanism by which the diabetes drug metformin may affect risk and progression of pancreatic cancer. Their results suggest that metformin’s effects are mediated through microRNAs and cancer stem cells, creating hope that metformin could play a role in mediating drug resistance common in pancreatic cancer.

What we have learned about pancreatic cancer from mouse models
The senior author on this Gastroenterology paper is Dave Tuveson, MD, PhD (2003 Career Development Award and Emeritus Scientific Advisory Board). In light of the poor survival rates of pancreatic cancer, Dr. Tuveson and colleagues describe the value of genetically engineered mouse models to improve understanding of the basic biology of the disease, as well as to assess potentially effective therapies.

The determinants of tumour immunogenicity
Liz Jaffee, MD (Emeritus Scientific Advisory Board) is among four leading cancer immunologists interviewed for this Nature Reviews Cancer piece.

Pancreatic neoplasm in 2012: an update. Tissue is an issue!
Journal of the Pancreas published this article to discuss the need for tissue repositories to become part of Phase III clinical trials, and for an improvement in the field’s understanding of the desmoplastic reaction critical to the growth of pancreatic tumors.

MicroRNA-10a is overexpressed, involved in invasiveness partially via suppression of the HOXA1 gene
Ohuchida and colleagues performed microarray analyses of miRNAs in pancreatic cancer cell lines, and determined the functional relevance of miRNAs that were found to be expressed highly.

Identification of NME5 as a contributor to innate resistance to gemcitabine in pancreatic cancer cells
This FEBS Journal article out of China Pharmaceutical University looks at the relationship between NME5 (non-metastatic cells 5) expression and activity, and pancreatic tumor cells’ response to gemcitabine. The authors’ data suggests that high NME5 expression contributes to gemcitabine resistance, by regulating apoptosis and cell cycle progression via NF-κB.

Pancreas-targeted siRNA in vivo transfection Kit from Altogen Biosystems
Altogen Biosystems is now offering a new pancreas-targeted in vivo RNAi transfection system. Highly efficient targeted delivery of biomolecules to pancreas tissue is achieved via multiple administration routes: intravenous, intratumoral, intraperitoneal, or subcutaneous.
**ETIOLOGY**

Impact of circulating vitamin D binding protein levels on vitamin D and pancreatic cancer risk

Researchers at the National Cancer Institute looked at data from the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study of Finnish men to evaluate the relationship between levels of vitamin D [25(OH)D] and vitamin D binding protein (DBP) and risk of pancreatic cancer. The authors found that higher concentrations of DBP can sequester 25(OH)D, reducing bioavailability of this vitamin. Therefore, both parameters should be measured to make predictions of pancreatic cancer risk.

Dietary intake of iron, heme-iron and magnesium and pancreatic cancer risk

This *International Journal of Cancer* publication describes an analysis of the association between dietary intake of iron, heme-iron, and magnesium and pancreatic cancer in the European Prospective Investigation into Cancer and Nutrition cohort. Although a relationship between these minerals and diabetes risk has been established, there was no connection with pancreatic cancer risk based on this study. However, there is a possibility that heme-iron intake might be associated with a higher risk of pancreatic cancer in female smokers, but further evaluation would be necessary to confirm this result.

Occurrence of pancreatic, biliary tract, and gallbladder cancers in Alaska Native people, 1973-2007

Published in the *International Journal of Circumpolar Health*, this study reports that incidence of pancreatic cancer is higher in Alaska Native women, compared to white women. Contributing risk factors such as smoking and obesity are modifiable.

**PREVENTION**

Applying what we know to accelerate cancer prevention

A research team at Washington University, St. Louis wrote this *Science Translational Medicine* review article. The authors argue that more than half of current cancer diagnoses could be prevented by changes to individual and population behaviors.

**EARLY DETECTION, DIAGNOSIS, AND PROGNOSIS**

Metformin use is associated with better survival of diabetic patients with pancreatic cancer

Along with other findings related to metformin and cancer, this story picked up a great deal of media attention last month (for example: [http://health.usnews.com/health-news/news/articles/2012/03/31/diabetes-drug-metformin-might-also-help-fight-cancer](http://health.usnews.com/health-news/news/articles/2012/03/31/diabetes-drug-metformin-might-also-help-fight-cancer)). Researchers at MD Anderson found that pancreatic cancer patients who were also being treated for diabetes with metformin had a better prognosis than those who did not receive metformin.

Perineural, intraneural invasion in posttherapy pancreaticoduodenectomy predicts poor prognosis

This study is out of the laboratory of Huamin Wang, MD, PhD (2007 Skip Viragh Career Development Award), with contribution from Medical Advisory Board members Chris Crane, MD and Jason Fleming,
The authors sought to evaluate the prognostic significance of perineural invasion in pancreatic cancer patients, in the context of neoadjuvant therapy and pancreaticoduodenectomy. Their results suggested that the occurrence of perineural invasion was a poor prognostic indicator in pancreatic cancer patients who underwent neoadjuvant therapy and surgery.

**SLC5A8 nuclear translocation and loss of expression are associated with poor outcome**

Among the authors on this *Pancreas* publication is Mo Malafa, MD (Medical Advisory Board). The investigators looked at the expression of SLC5A8, the gene that codes for the sodium-coupled monocarboxylate transporter 1, in pancreatic cancer. Their data suggest that nuclear translocation and loss of expression of SLC5A8 are correlated with poor prognosis in pancreatic cancer patients.

**Sleeping Beauty mutagenesis reveals cooperating mutations, pathways in pancreatic adenocarcinoma**

The Methodist Hospital Research Institute issued this press release about this study: [http://www.methodisthealth.com/body.cfm?xyzpdqabc=0&id=495&action=detail&ref=900](http://www.methodisthealth.com/body.cfm?xyzpdqabc=0&id=495&action=detail&ref=900). Published in *PNAS*, the paper describes using Sleeping Beauty (SB) transposon to induce mutations in a mouse model of pancreatic cancer driven by Kras. Placement of SB resulting in highly metastatic disease revealed candidate cancer genes throughout the genome, which could serve as potential biomarkers for diagnosis or prognostic predictions.

**Gene linked to pancreatic cancer**

This *JNCI* article is in response to a *Cancer Discovery* paper from January discussing ATM mutations in patients with hereditary pancreatic cancer. Fillon comments on Klein et al’s findings in relationship to improved screening for individuals at risk for pancreatic cancer.

**Road to early detection of pancreatic cancer: Attempts to utilize epigenetic biomarkers**

This *Cancer Letters* review discusses the potential utility for epigenetic biomarkers to facilitate the early detection of pancreatic cancer.

**Prognostic value of gross tumor volume delineated by FDG-PET-CT based radiotherapy treatment**

Parlak and colleagues in Turkey sought to determine whether gross tumor volume determined by fusion of contrast-enhanced computerized tomography and 18F-fluoro-deoxy-D-glucose positron emission tomography-CT based radiotherapy planning could predict outcomes in locally advanced pancreatic cancer patients who were treated with chemoradiotherapy. Patients with lesser gross tumor volume by these screening methods had improved survival outcomes, suggesting a value for this type of screening.
Serum CA19-9 is significant predictor among preoperative parameters early recurrence after resection
Published in the *Journal of Gastrointestinal Surgery*, this study determined a CA19-9 cutoff of 100 U/ml to predict which pancreatic cancer patients were most likely to recur after resection, and also make prognostic predictions.

Number of lymph nodes evaluated: prognostic value in pancreatic adenocarcinoma
In the same upcoming issue of *Journal of Gastrointestinal Surgery*, this paper out of Mayo Clinic measures the minimum number of evaluated lymph nodes necessary to provide an accurate staging of a pancreatic cancer diagnosis. Their data suggest that at least 11 lymph nodes need to be assessed in order to make an accurate prediction of patient staging and outcome.

Impact of obesity and body fat distribution on survival after pancreaticoduodenectomy
Researchers at Memorial Sloan-Kettering looked at correlations between body mass index (BMI), visceral fat area (VFA), and survival of pancreatic cancer patients after pancreaticoduodenectomy. Although BMI and VFA were positively correlated, there was no association of either of these parameters with patient survival.

Relapse-free survival in patients with nonmetastatic, resected pancreatic neuroendocrine tumors
Strosberg and colleagues at the Moffitt Cancer Center analyzed the American Joint Committee on Cancer (AJCC) and European Neuroendocrine Tumor Society (ENETS) staging classifications. The authors found that the AJCC and ENETS TNM measures for pancreatic neuroendocrine tumors provided valid prognostic information for patient outcome.

TREATMENT
Enzymatic targeting of the stroma ablates physical barriers to treatment of pancreatic cancer
*Pancreatic Cancer Action Network* write-up:
This *Cancer Cell* paper is out of the lab of Sunil Hingorani, MD, PhD (2005 Dr. Laurence A. Mack and Roselle Mack Memorial Career Development Award and 2007 Pilot Grant). Dr. Hingorani and colleagues evaluated the effectiveness of a drug called PEGPH20 (Halozyme Therapeutics) to target hyaluronic acid present in the pancreatic tumor microenvironment, and facilitate drug delivery by normalizing interstitial fluid pressure of the blood vessels. Similar results were published in a *Gut* paper this month as well (see below).

Hyaluronan impairs vascular function and drug delivery in a mouse model of pancreatic cancer
This *Gut* paper from David Tuveson, MD, PhD (2003 Career Development Award and Emeritus Scientific Advisory Board)’s lab drew similar conclusions as Dr. Hingorani’s *Cancer Cell* paper described above.
Hyaluronic acid was found to impede normal tumor vasculature in pancreatic tumors, so targeting this protein led to enhanced blood vessel formation and therefore drug delivery to the tumor.

**Mouse 'avatars' could aid pancreatic cancer therapy**
http://www.nature.com/news/mouse-avatars-could-aid-pancreatic-cancer-therapy-1.10259

Published in *Nature* News, this story describes research presented at the annual meeting of the Human Genome Organisation (HUGO) in Australia. A mouse “avatar” involves a piece of human pancreatic tumor xenografted into an immunodeficient mouse, and then experiments are conducted to test drug sensitivity in the mouse model that is designed to mimic the individual patient’s disease.

**Sequential FOLFOX-6 and gemcitabine for locally advanced and/or metastatic pancreatic cancer**

A phase II trial in Beirut, Lebanon aimed to test sequential FOLFOX-6 and gemcitabine in patients with locally advanced pancreatic cancer. The investigators saw a positive response rate and tolerability that suggested this regimen deserved additional testing.

**Adjuvant stereotactic body radiotherapy for resected pancreatic adenocarcinoma**

Rwigema *et al* evaluated the role of adjuvant stereotactic body radiation (SBRT) in patients with resected pancreatic cancer whose surgery left close or positive margins. This regimen was successful and provided low toxicity, and allowed patients to undergo systemic treatment faster.

**Pancreatic cancer: Paclitaxel stabilizes intratumoural gemcitabine levels**

*Nature Reviews Clinical Oncology* published this research highlight to discuss recent results out of Dr. Dave Tuveson’s lab (http://cancerdiscovery.aacrjournals.org/content/early/2012/02/23/2159-8290.CD-11-0242.abstract) about nab-paclitaxel potentiating the effects of gemcitabine by reducing cytidine deaminase levels in a pancreatic cancer mouse model.

**Loco-recurrence after resection for ductal adenocarcinoma of the pancreas**

This study out of Imperial College in London evaluated predictors for loco (regional) recurrence in pancreatic cancer patients after pancreatectoduodenectomy. Although patients with local recurrence were shown to have improved survival after recurrence compared to those with distant disease, adjuvant chemoradiotherapy could further improve the outcome in this patient population.

**Phase II study of panobinostat and bortezomib in patients progressing on gemcitabine-based therapy**

Researchers at the University of Minnesota Medical School conducted a phase II study of panobinostat (a histone deacetylase inhibitor) and bortezomib (a proteasome inhibitor) in pancreatic cancer patients whose disease progressed despite gemcitabine treatment. A lack of treatment response and significant toxicity indicated that this regimen should not be further considered for this patient population.
Phase I trial of AEG35156 an antisense oligonucleotide to XIAP plus gemcitabine
Published in *American Journal of Clinical Oncology*, this paper describes a phase I study evaluating AEG35156, an antisense oligonucleotide that targets X-linked inhibitor of apoptosis (XIAP), administered in combination with gemcitabine, in patients with metastatic pancreatic cancer. The investigators established a maximum tolerated dose of AEG35156, but the drug failed to show any clinical activity in this patient population.

Neoadjuvant chemoradiation with gemcitabine for locally advanced pancreatic cancer
http://www.ro-journal.com/content/7/1/28/abstract
This *Radiation Oncology* paper discusses neoadjuvant chemoradiation for pancreatic cancer patients with locally advanced disease, with goals to make the tumor surgically resectable. This strategy was successful whereby 26 percent of patients who were initially unresectable were able to undergo secondary resection after neoadjuvant gemcitabine-based chemoradiation, improving prognosis.

Editorial: Pancreatic Cancer: between bench and bedside
http://www.benthamscience.com/cdt/E-Pub-Ahead-of-Schedule.htm#170
The journal *Current Drug Targets* considered pancreatic cancer a *Hot Topic* and electronically published this editorial, in addition to several following articles, discussing the current state and future of treatment strategies for pancreatic cancer.

Distal pancreatectomy with en bloc celiac axis resection for locally advanced pancreatic cancer
Baumgartner *et al* undertook a retrospective review of distal pancreatectomies with en bloc celiac axis resection for pancreatic adenocarcinoma. They found that this procedure is feasible and yields acceptable mortality and morbidity outcomes.

Intraductal papillary mucinous neoplasms of the pancreas-a surgical disease
*Nature Reviews Gastroenterology and Hepatology* published this review article discussing management of intraductal papillary mucinous neoplasms (IPMNs), with particular emphasis on appropriateness and value of surgical resection.

Pancreatic cancer stem cells: Emerging target for designing novel therapy
Scientists from the Karmanos Cancer Institute wrote this review to discuss treatment options for pancreatic cancer that are targeted towards cancer stem cells or epithelial-mesenchymal-type cells.

Pancreatic neuroendocrine tumors with involved surgical margins
This paper addresses the role of adjuvant radiotherapy in patients with pancreatic neuroendocrine tumors (pNETs). A team from Harvard’s Radiation Oncology department reported that, even though pNET patients who received radiation therapy (RT) had larger tumors than those who did not, RT yielded
similar rates of local recurrence as patients with smaller tumors. These results suggest that RT could be effective in the local control of pNETs.

**A phase 2 study of the insulin-like growth factor-1 receptor inhibitor MK-0646**
A phase 2 study at Sloan-Kettering evaluated the safety and efficacy of MK-0646, a humanized monoclonal antibody against insulin-like growth factor-1, in patients with neuroendocrine tumors. MK-0646 was found to be inactive as a monotherapy in well-differentiated neuroendocrine tumors.

**Neuroendocrine pancreatic tumors: guidelines for management and update**
This *Current Treatment Options in Oncology* paper discusses pancreatic neuroendocrine tumors and potential treatment strategies.

**The Cancer Cell Line Encyclopedia enables predictive modelling of anticancer drug sensitivity**
Published in *Nature*, this paper out of the Broad Institute describes the Cancer Cell Line Encyclopedia: a compilation of gene expression, chromosomal copy number, and massively parallel sequencing data from 947 human cancer cell lines. The goal of the project is to use these data to make predictions for drug sensitivity and achieve better individualized patient care.

**Electrical pulse treatment gives pancreatic cancer patients new hope**
*Society of Interventional Radiology's 37th Annual Scientific Meeting abstract:*
http://www.jvir.org/article/S1051-0443(11)01661-7/fulltext
Researchers from the University of Miami evaluated percutaneous irreversible electroporation (IRE) using the Nanoknife in pancreatic cancer patients with vascular encasement of their tumors. The intention of this procedure is to make locally advanced patients eligible for margin-negative resections.

**Threshold scores big with pancreatic cancer data**
This *Seeking Alpha* article discusses the recent data from Threshold Pharmaceuticals regarding TH-302 in the treatment of pancreatic cancer, and some of the potential concerns and future successes of this compound.

**Completed pancreatic cancer phase 1-2 trial concluded encapsulated cells produced chemotherapy**
Nuvilex, Inc. discusses their proprietary Cell-in-a-Box® technology, involving encapsulated cells, that allows large concentrations of a drug (ifosfamide) to be delivered directly to a pancreatic tumor.
Clovis Oncology announces 2011 operating results
http://phx.corporate-ir.net/phoenix.zhtml?c=247187&p=irrol-newsArticle&ID=1670403&highlight=
In early March, the Boulder-based company Clovis Oncology issued this press release to report its 2011 results. Looking back at 2011 and forward towards 2012, the CEO expressed excitement over their LEAP study evaluating a lipid-conjugated gemcitabine for pancreatic cancer patients without hENT1 transporter expression (see more below).

Clovis Oncology completes enrollment in pivotal LEAP trial of CO-101 versus gemcitabine
http://phx.corporate-ir.net/phoenix.zhtml?c=247187&p=irrol-newsArticle&ID=1676228&highlight=
Clovis Oncology’s LEAP (Low hENT1 and Adenocarcinoma of the Pancreas) trial accrued its target enrollment of metastatic pancreatic cancer patients in late March. The trial is based on the hypothesis that patients with low hENT1 transporter expression will have poor response to gemcitabine. Therefore, they have developed a compound called CO-101 that is a lipid-conjugated gemcitabine and is internalized by cancer cells regardless of hENT1 expression.

Peregrine Pharmaceuticals reports third quarter fiscal year 2012 financial results, developments
Peregrine Pharmaceuticals, Inc. released their third quarter report, for the period ending January 31, 2012. Their compound bavituximab is a monoclonal antibody that targets the phospholipid phosphatidylserine on the surface of cancer cells. Bavituximab is being tested in Phase II clinical trials for advanced pancreatic cancer patients. Pelegrine hopes to complete enrollment of this trial this year.

Halozyme reports fourth quarter and year end 2011 financial results and provides guidance for 2012
Located in San Diego, Halozyme Therapeutics, Inc. also shared their latest updates of their company’s progress. Halozyme is testing pegylated rHuPH20 (PEGPH20) as an agent to target the stroma (hyaluronin) in pancreatic tumors.

Oncolytics Biotech® Inc. announces 2011 year end results
Oncolytics Biotech, Inc. reports on their financial results and operational highlights through December 31, 2011. They had encouraging results testing REOLYSIN® (Respiratory Enteric Orphan Virus), in combination with gemcitabine in patients with advanced pancreatic cancer.

NewLink Genetics Corporation reports fourth quarter and full-year 2011 financial results
Another company providing financial updates was NewLink Genetics Corporation, based in Ames, Iowa. Progress with the company’s HyperAcute Phase 3 clinical trial is included in the report.
“Commercializing Pancreatic Cancer Drugs in Cancer: The Faster Route to Consider Your Options and Position of Others” is a new report that describes pancreatic cancer drugs that are in development or already proceeding (or failed) in clinical trials.

**CANCER CONTROL, SURVIVORSHIP, AND OUTCOMES RESEARCH**

Annual Report to the Nation on the status of cancer, featuring cancers associated with excess weight

Example of media coverage: [http://www.dispatch.com/content/stories/local/2012/03/28/cancer-obesity.html](http://www.dispatch.com/content/stories/local/2012/03/28/cancer-obesity.html)

This report, prepared through a collaboration between the American Cancer Society (ACS), the Centers for Disease Control and Prevention (CDC), the National Cancer Institute (NCI), and the North American Association of Central Cancer Registries (NAACCR), discusses cancer incidence in relation to obesity. Whereas many cancer types’ incidence rates have been decreasing, a few, including pancreatic, have increased, potentially due to excess weight and lack of physical activity.

**Costs and trends in pancreatic cancer treatment**

Eileen O'Reilly, MD (Medical Advisory Board) is an author on this Cancer paper. Researchers in the Epidemiology and Biostatistics department at Memorial Sloan-Kettering looked at SEER data to establish the economic burden of pancreatic cancer in the elderly, and found it to be substantial.

**Hospital and medical care days in pancreatic cancer**

Researchers at the University of Texas Medical Branch were the first to quantify hospital/medical care days in patients with pancreatic cancer by stage, treatment, and survival.

**ASCO provisional clinical opinion: the integration of palliative care into standard oncology care**

**A conversation with Dr. Thomas Smith on the growing role of palliative care for patients with cancer**

This American Society of Clinical Oncology (ASCO) provisional clinical opinion (PCO) discusses the inclusion of palliative care in the treatment and symptom management of cancer patients diagnosed with metastatic or advanced disease.

**Survey reveals a majority unaware of risk for developing deep-vein thrombosis, pulmonary embolism**

The Coalition to Prevent Deep Vein Thrombosis was concerned to find that a majority of cancer patients and survivors were unaware of the increased risk of developing DVT or pulmonary embolism. The organization’s website offers educational materials and resources on this important topic.