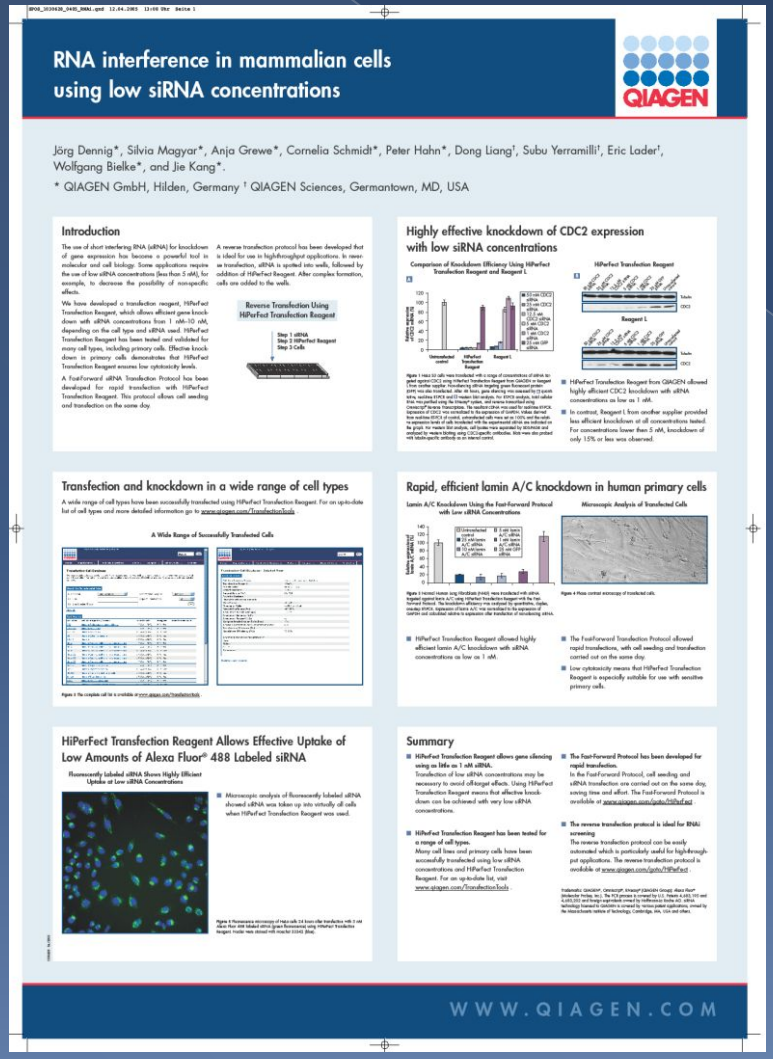
Как подготовить стендовый доклад?

Что такое стендовый доклад?

- это результаты научного исследования, оформленные в виде большого бумажного плаката (постера).
- **Постер-доклад** – достаточно новая для России, но хорошо себя зарекомендовавшая форма представления результатов научного исследования на крупной конференции. Автор демонстрирует свой материал в письменной форме, коллеги имеют возможность ознакомиться в ним и задать вопросы непосредственно в процессе знакомства с данными.

Примеры:



RNA interference in mammalian cells using low siRNA concentrations

QIAGEN

Jörg Dennig*, Silvia Magyar*, Anja Grewe*, Cornelia Schmidt*, Peter Hahn*, Dong Liang†, Subu Yerramilli†, Eric Lader†, Wolfgang Bielke*, and Jie Kang*.

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Introduction

The use of short interfering RNA (siRNA) for knockdown of gene expression has become a powerful tool in molecular and cell biology. Some applications require the use of low siRNA concentrations (less than 5 nM), for example, to decrease the possibility of non-specific effects.

We have developed a transfection reagent, HiPerFect Transfection Reagent, which allows efficient gene knockdown with siRNA concentrations from 1 nM–10 nM, depending on the cell type and siRNA used. HiPerFect Transfection Reagent has been tested and validated for many cell types, including primary cells. Effective knockdown in primary cells demonstrates that HiPerFect Transfection Reagent ensures low cytotoxicity levels.

A Fast-Forward siRNA Transfection Protocol has been developed for rapid transfection with HiPerFect Transfection Reagent. This protocol allows cell seeding and transfection on the same day.

A reverse transfection protocol has been developed that is ideal for use in high-throughput applications. In reverse transfection, siRNA is spotted into wells, followed by addition of HiPerFect Reagent. After complex formation, cells are added to the wells.

Reverse Transfection Using HiPerFect Transfection Reagent

Step 1 siRNA
Step 2 HiPerFect Reagent
Step 3 Cells

Highly effective knockdown of CDC2 expression with low siRNA concentrations

Comparison of Knockdown Efficiency Using HiPerFect Transfection Reagent and Reagent L

HiPerFect Transfection Reagent

Reagent L

- HiPerFect Transfection Reagent from QIAGEN allowed highly efficient CDC2 knockdown with siRNA concentrations as low as 1 nM.
- In contrast, Reagent L from another supplier provided less efficient knockdown at all concentrations tested. For concentrations lower than 5 nM, knockdown of only 15% or less was observed.

Transfection and knockdown in a wide range of cell types

A wide range of cell types have been successfully transfected using HiPerFect Transfection Reagent. For an up-to-date list of cell types and more detailed information go to www.qiagen.com/TransfectionTools

A Wide Range of Successfully Transfected Cells

Rapid, efficient lamin A/C knockdown in human primary cells

Lamin A/C Knockdown Using the Fast-Forward Protocol with Low siRNA Concentrations

Microscopic Analysis of Transfected Cells

- HiPerFect Transfection Reagent allowed highly efficient lamin A/C knockdown with siRNA concentrations as low as 1 nM.
- The Fast-Forward Transfection Protocol allowed rapid transfections, with cell seeding and transfection carried out on the same day.
- Low cytotoxicity means that HiPerFect Transfection Reagent is especially suitable for use with sensitive primary cells.

HiPerFect Transfection Reagent Allows Effective Uptake of Low Amounts of Alexa Fluor® 488 Labeled siRNA

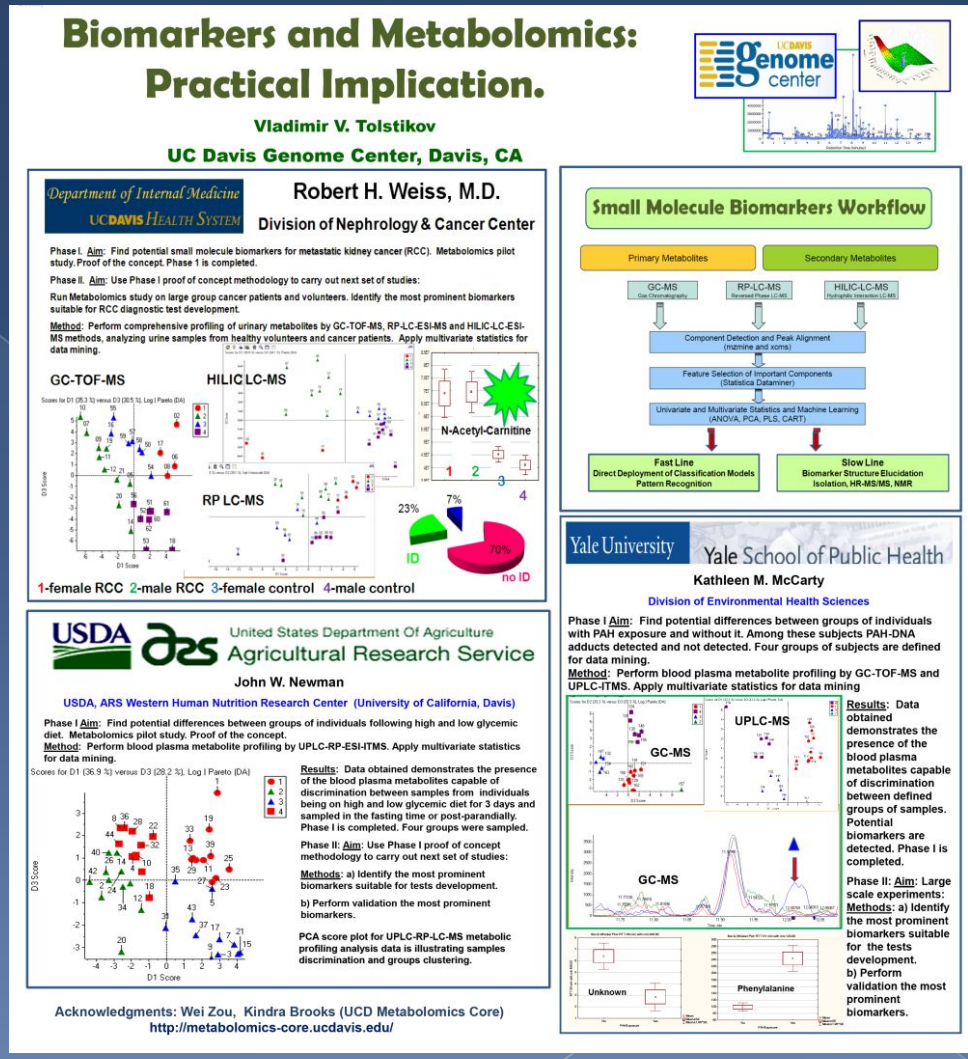
Fluorescently Labeled siRNA Shows Highly Efficient Uptake at Low siRNA Concentrations

- Microscopic analysis of fluorescently labeled siRNA showed siRNA was taken up into virtually all cells when HiPerFect Transfection Reagent was used.

Summary

- HiPerFect Transfection Reagent allows gene silencing using as little as 1 nM siRNA.
  Transfection of low siRNA concentrations may be necessary to avoid off-target effects. Using HiPerFect Transfection Reagent means that effective knockdown can be achieved with very low siRNA concentrations.
- HiPerFect Transfection Reagent has been tested for a range of cell types.
  Many cell lines and primary cells have been successfully transfected using low siRNA concentrations and HiPerFect Transfection Reagent. For an up-to-date list, visit www.qiagen.com/TransfectionTools
- The Fast-Forward Protocol has been developed for rapid transfection.
  In the Fast-Forward Protocol, cell seeding and siRNA transfection are carried out on the same day, saving time and effort. The Fast-Forward Protocol is available at www.qiagen.com/goto/FFHiPerFect
- The reverse transfection protocol is ideal for RNAi screening
  The reverse transfection protocol can be easily automated which is particularly useful for high-throughput applications. The reverse transfection protocol is available at www.qiagen.com/goto/HiPerFect

WWW.QIAGEN.COM



Biomarkers and Metabolomics: Practical Implication.

Vladimir V. Tolstikov

UC Davis Genome Center, Davis, CA

Department of Internal Medicine UC DAVIS HEALTH SYSTEM

Robert H. Weiss, M.D.

Division of Nephrology & Cancer Center

Phase I. Aim: Find potential small molecule biomarkers for metastatic kidney cancer (RCC). Metabolomics pilot study. Proof of the concept. Phase 1 is completed.

Phase II. Aim: Use Phase I proof of concept methodology to carry out next set of studies:

Run Metabolomics study on large group cancer patients and volunteers. Identify the most prominent biomarkers suitable for RCC diagnostic test development.

Method: Perform comprehensive profiling of urinary metabolites by GC-TOF-MS, RP-LC-ESI-MS and HILIC-LC-ESI-MS methods, analyzing urine samples from healthy volunteers and cancer patients. Apply multivariate statistics for data mining.

GC-TOF-MS

HILIC LC-MS

RP LC-MS

N-Acetyl-Carnitine

1-female RCC 2-male RCC 3-female control 4-male control

USDA United States Department Of Agriculture Agricultural Research Service

John W. Newman

USDA, ARS Western Human Nutrition Research Center (University of California, Davis)

Phase I Aim: Find potential differences between groups of individuals following high and low glycemic diet. Metabolomics pilot study. Proof of the concept.
Method: Perform blood plasma metabolite profiling by UPLC-RP-ESI-ITMS. Apply multivariate statistics for data mining.

Scores for D1 (36.9 %) versus D3 (28.2 %), Log [Pareto (DA)

Results: Data obtained demonstrates the presence of the blood plasma metabolites capable of discrimination between samples from individuals being on high and low glycemic diet for 3 days and sampled in the fasting time or post-parandially. Phase I is completed. Four groups were sampled.

Phase II: Aim: Use Phase I proof of concept methodology to carry out next set of studies:

Methods: a) Identify the most prominent biomarkers suitable for tests development.

b) Perform validation the most prominent biomarkers.

PCA score plot for UPLC-RP-LC-MS metabolic profiling analysis data is illustrating samples discrimination and groups clustering.

Acknowledgments: Wei Zou, Kindra Brooks (UCD Metabolomics Core)
http://metabolomics-core.ucdavis.edu/

Small Molecule Biomarkers Workflow

Primary Metabolites

Secondary Metabolites

GC-MS

RP-LC-MS

HILIC-LC-MS

Component Detection and Peak Alignment (mzmine and xcms)

Feature Selection of Important Components (Statistica Datamaner)

Univariate and Multivariate Statistics and Machine Learning (ANOVA, PCA, PLS, CART)

Fast Line
Direct Deployment of Classification Models
Pattern Recognition

Slow Line
Biomarker Structure Elucidation
Isolation, HR-MS/MS, NMR

Yale University Yale School of Public Health

Kathleen M. McCarty

Division of Environmental Health Sciences

Phase I Aim: Find potential differences between groups of individuals with PAH exposure and without it. Among these subjects PAH-DNA adducts detected and not detected. Four groups of subjects are defined for data mining.
Method: Perform blood plasma metabolite profiling by GC-TOF-MS and UPLC-ITMS. Apply multivariate statistics for data mining

GC-MS

UPLC-MS

GC-MS

Unknown

Phenylalanine

Results: Data obtained demonstrates the presence of the blood plasma metabolites capable of discrimination between defined groups of samples. Potential biomarkers are detected. Phase I is completed.

Phase II: Aim: Large scale experiments:
Methods: a) Identify the most prominent biomarkers suitable for the tests development.
b) Perform validation the most prominent biomarkers.

В современном мире наблюдается переизбыток информации и недостаток времени.

- Поэтому в последнее время на международных научных конференциях делают все больше стендовых докладов.

У стендового доклада есть и другие преимущества:

- 1.Представляя стендовый доклад, вы можете более свободно излагать информацию, не заботясь о времени.
- 2. Можно вступить в более тесную коммуникацию с людьми, которых интересует Ваше исследование.
- 3. Можно избежать устного доклада, если Вы страдаете дисфункцией речи

- 4. Вы можете использовать этот же постер для других конференций.
- 5. Стендовый доклад можно повесить в своем учебном заведении и познакомить со своими исследованием коллег, которые не смогли приехать на конференцию.
- 6. Наконец, Вы можете поместить PDF своего доклада в банк постерных докладов, например на www.eposters.net, и тогда больше людей смогут прислать Вам свои комментарии.

Изготовление постера – творческий процесс, но тем не менее следует придерживаться некоторых основных принципов.

- **Читаемость**
- **Наглядность**
- **Понятность**
- Тем не менее, его прочтет большее количество людей, если Вам удастся придать ему привлекательный внешний вид!

Размер постера

- 120 см на 80 см – формат А0 (расположение листа – по вертикали или горизонта-ли).
- Постер может состоять как из одного листа формата А0, так и из нескольких листов формата А4 или А3 (в сумме не превышающих лист формата А0).

Структура

- В верхней части листа содержится следующая информация:
- * название постера,
- * ФИО автора (ов),
- * краткие сведения об авторах (уч. степень, должность и место работы),
- * контактные данные (желательно указать адрес электронной почты).

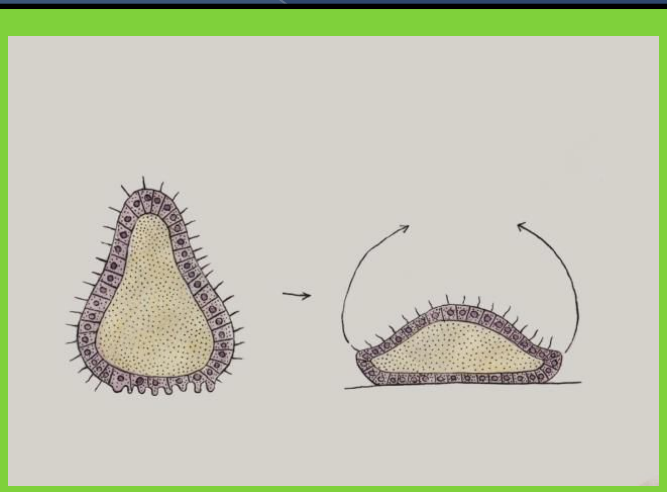
Постер (стендовый доклад) представляет собой краткое сообщение о научной работе и обычно содержит все те же разделы, что и научная статья:

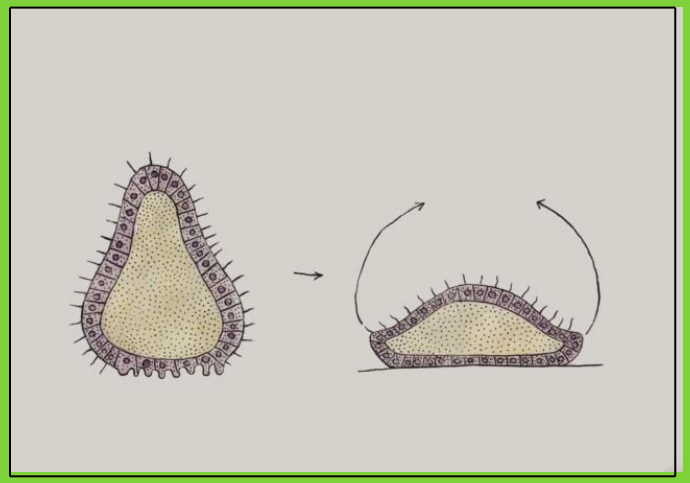
- * введение (актуальность),
- * цель исследования,
- * методы исследования,
- * результаты и их обсуждение,
- * выводы,
- * краткий список литературы.

Иллюстрации

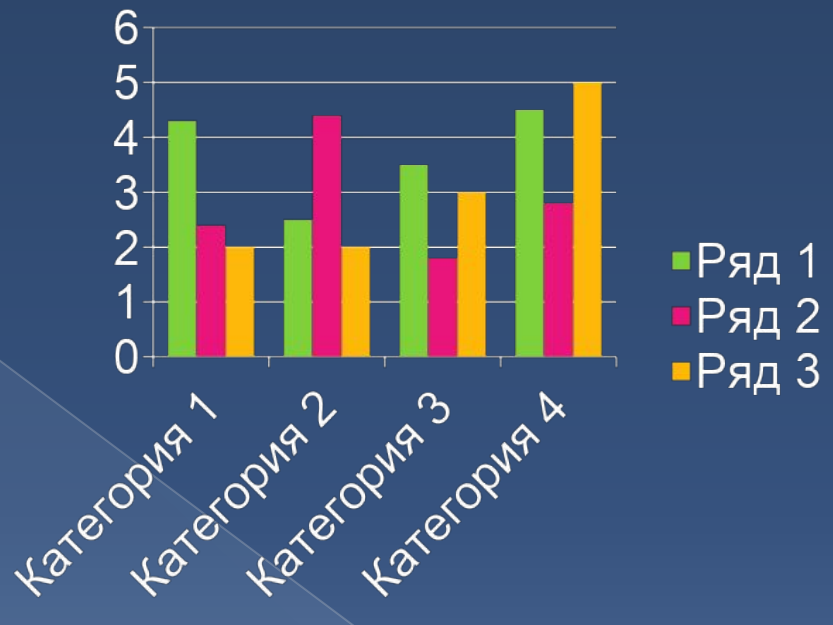
- * графические материалы облегчают процесс изложения доклада,
- * иллюстрации должны читаться участниками на расстоянии одного метра и далее,
- * диаграммы, рисунки и схемы предпочтительно оформлять простыми и четкими линиями,
- * заголовок постера рекомендуется печатать не менее, чем 60-м кеглем, а сам текст постера - не менее, чем 20-м.

Фотографии и рисунки выглядят выигрышнее, если обвести их узким черным контуром:





Как выбрать цвета для диаграмм и графиков?



Не используйте однотипные цвета

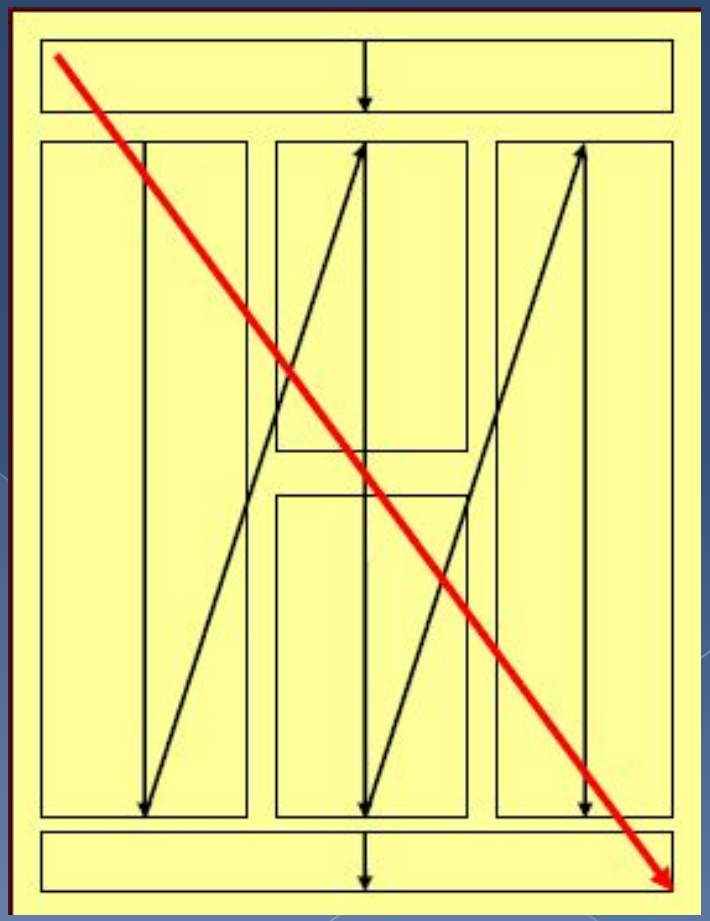
Используйте цвета, которые хорошо отличаются друг от друга!

Как выбрать дизайн постера?

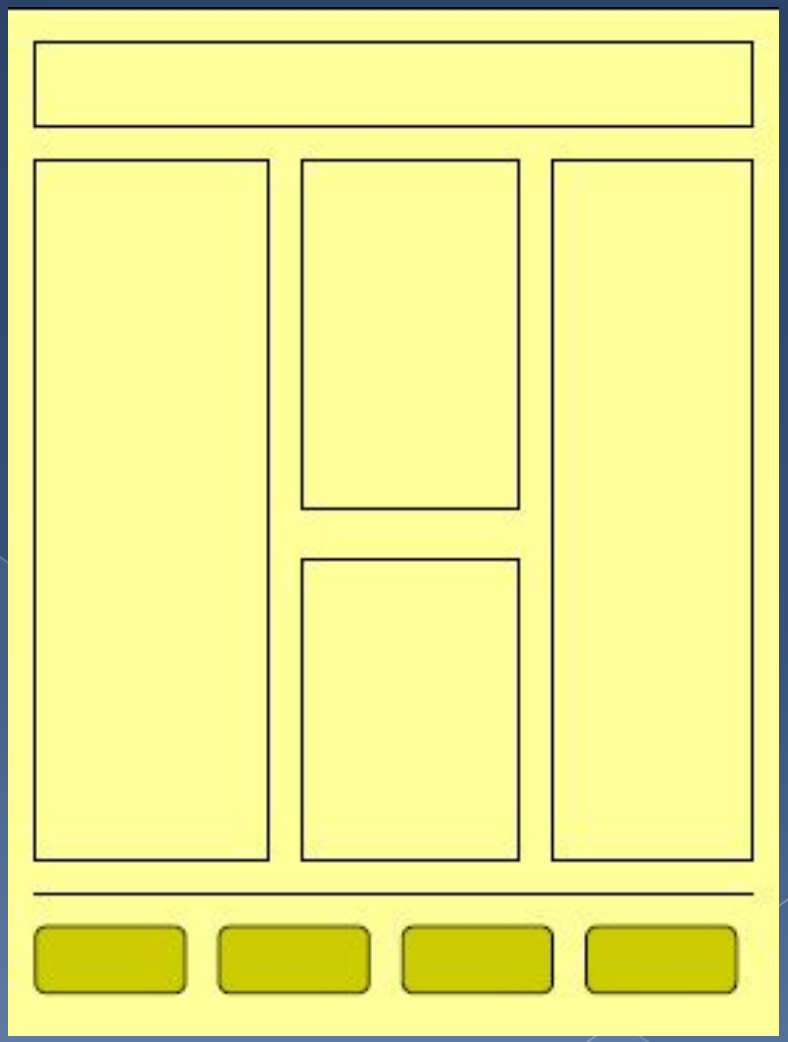
- Используйте оформление, которое соответствует теме Вашего доклада
- Не используйте только черные и белые цвета.
- Лучше используйте пастельные цвета

Как разместить информацию на стенде?

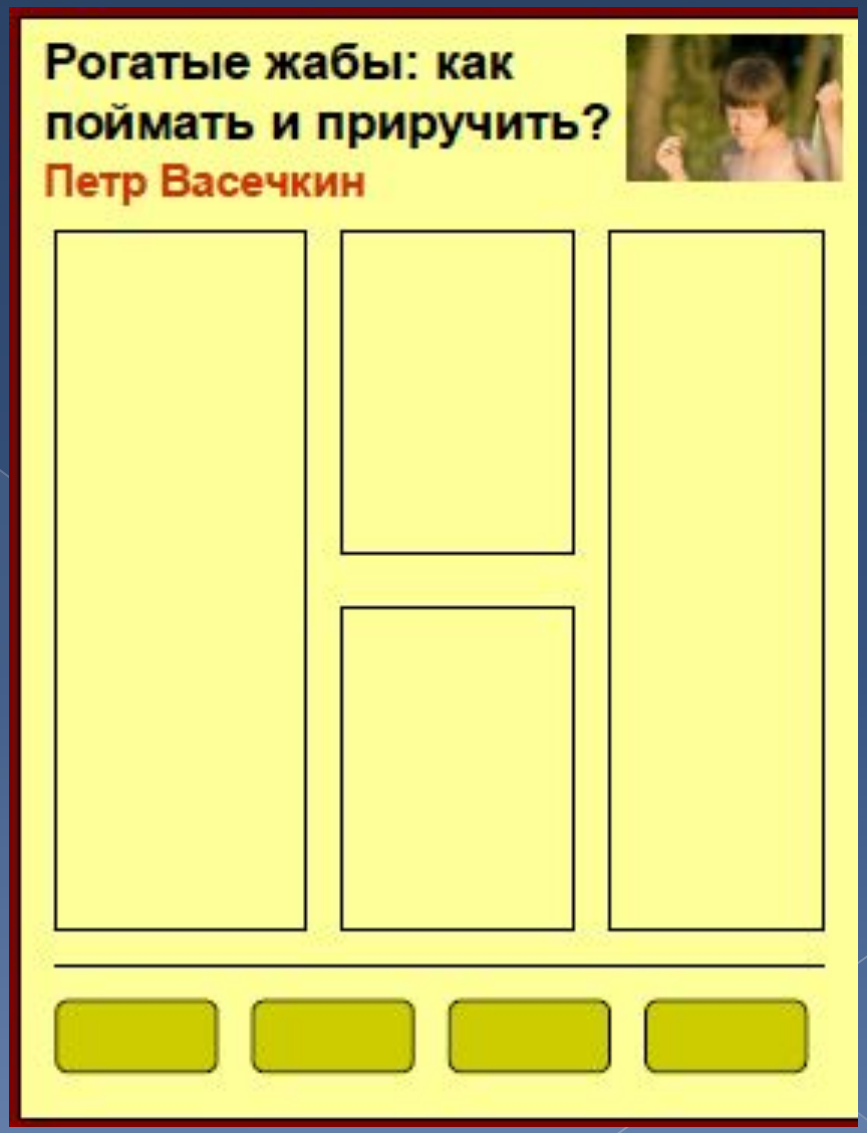
- В европейских языках читают слева направо и сверху вниз, поэтому размещайте информацию так, чтобы читая, человек двигался от верхнего левого края к нижнему правому.



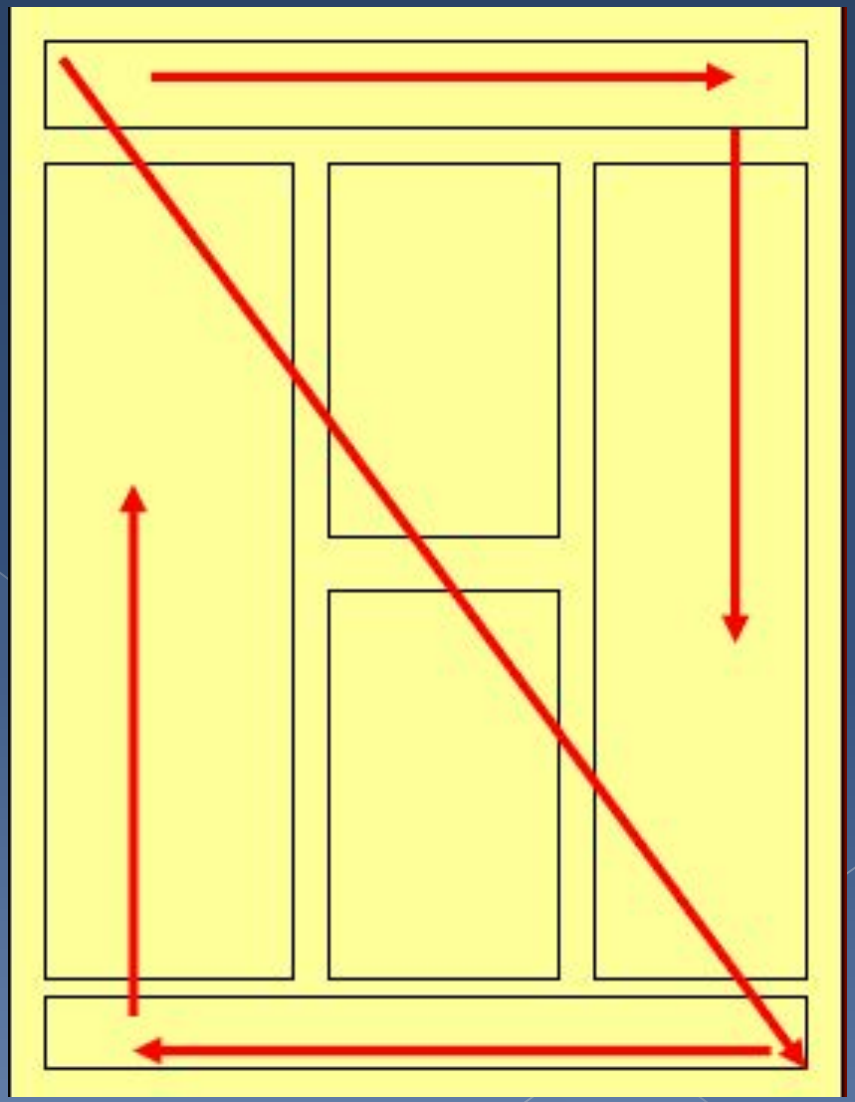
Несущественные разделы, которые не нужны для понимания Вашего исследования, такие как благодарности, список литературы и т.д. (хотя некоторые люди их читают), можно вынести в отдельное поле внизу доклада:



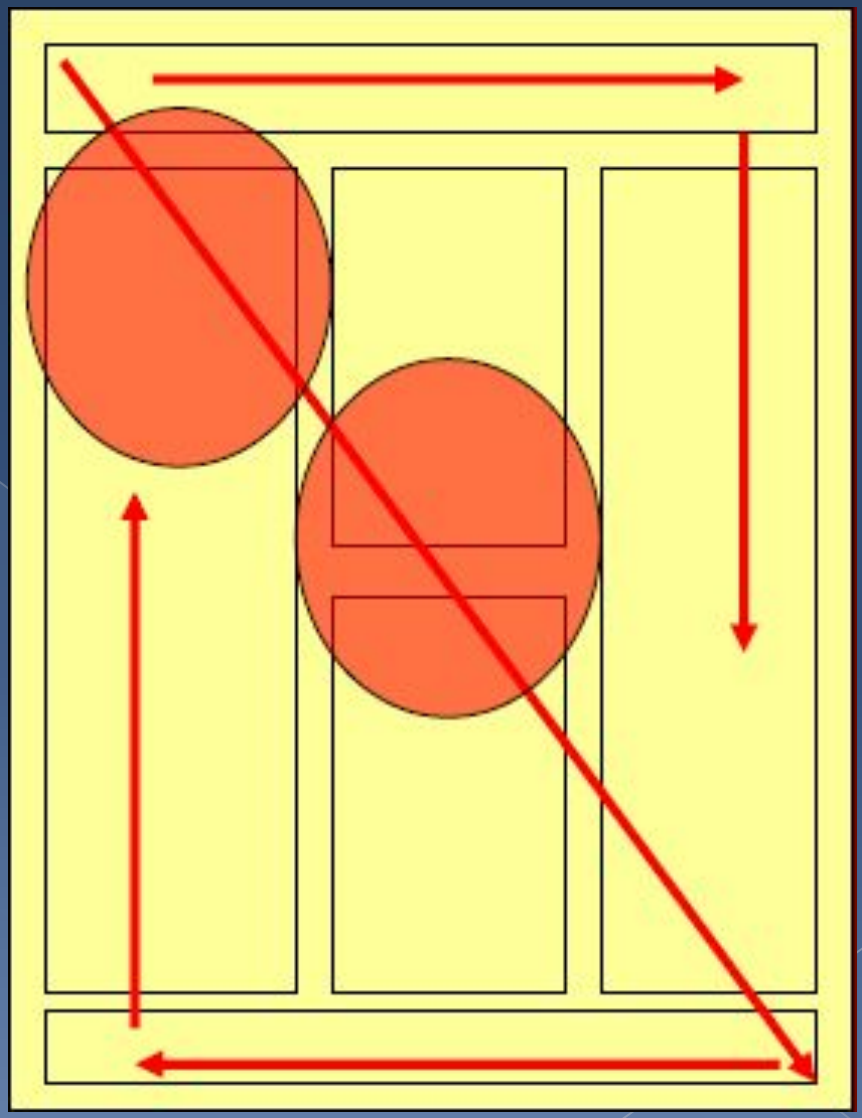
- ФИО авторов как правило размещают под названием, а фотографии –в правом верхнем углу.



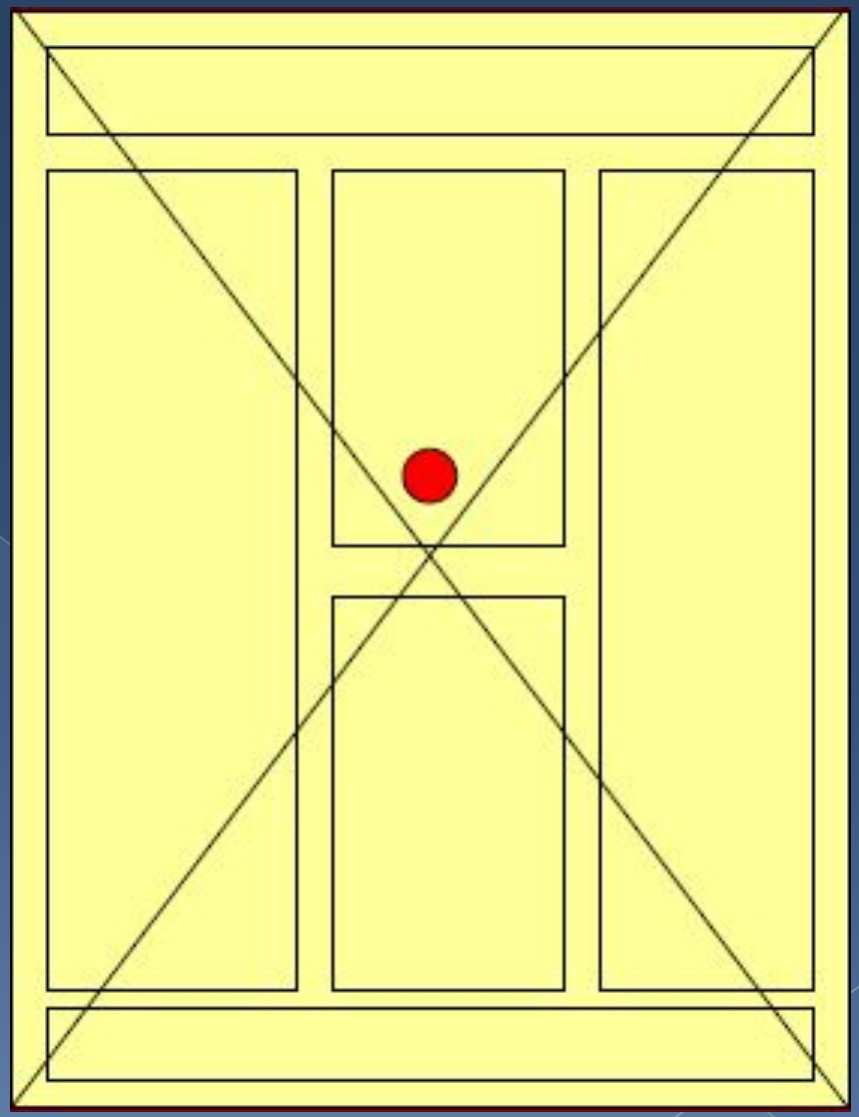
- При просматривании страницы внимание в основном направлено на верхний левый угол и центр, затем правый нижний угол, затем левый нижний и правый верхний.



- Поэтому самую важную информацию лучше помещать в левый верхний угол и в центр.

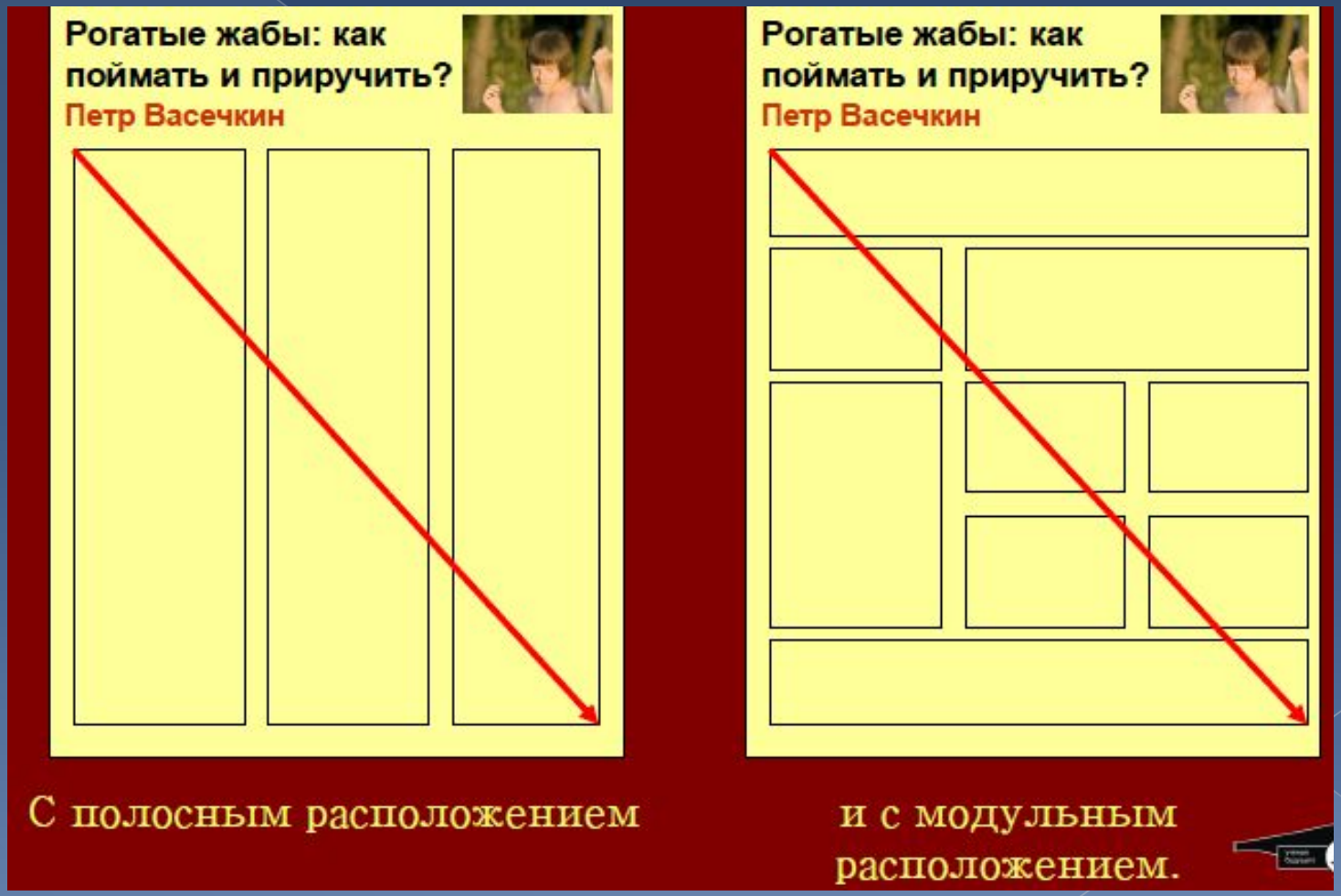


- Помните, что оптический центр страницы примерно на 1/8 выше его геометрического центра.

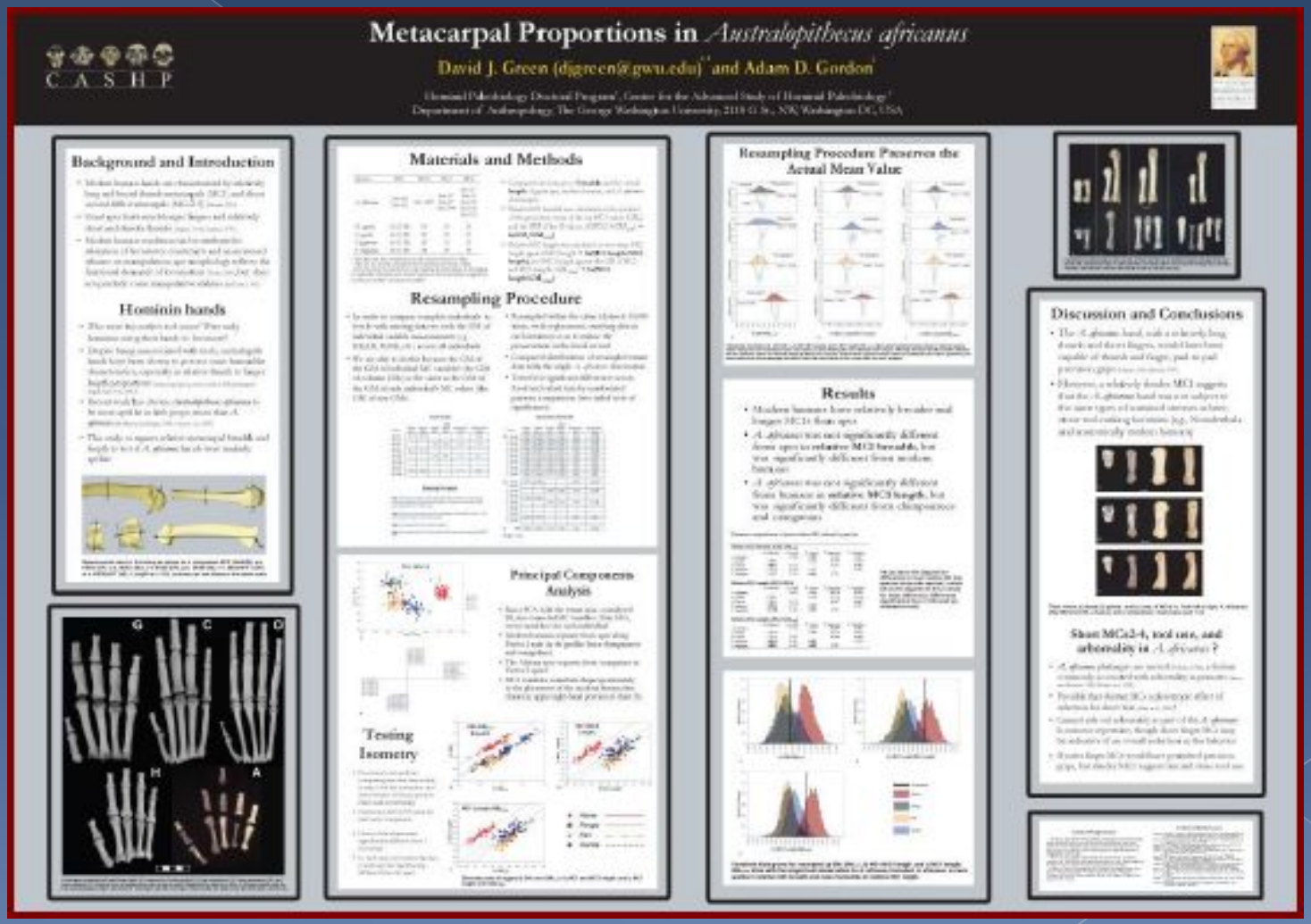


- Правый верхний угол лучше занять фотографиям и авторов, необходимым и эмблемами или элементом дизайна:

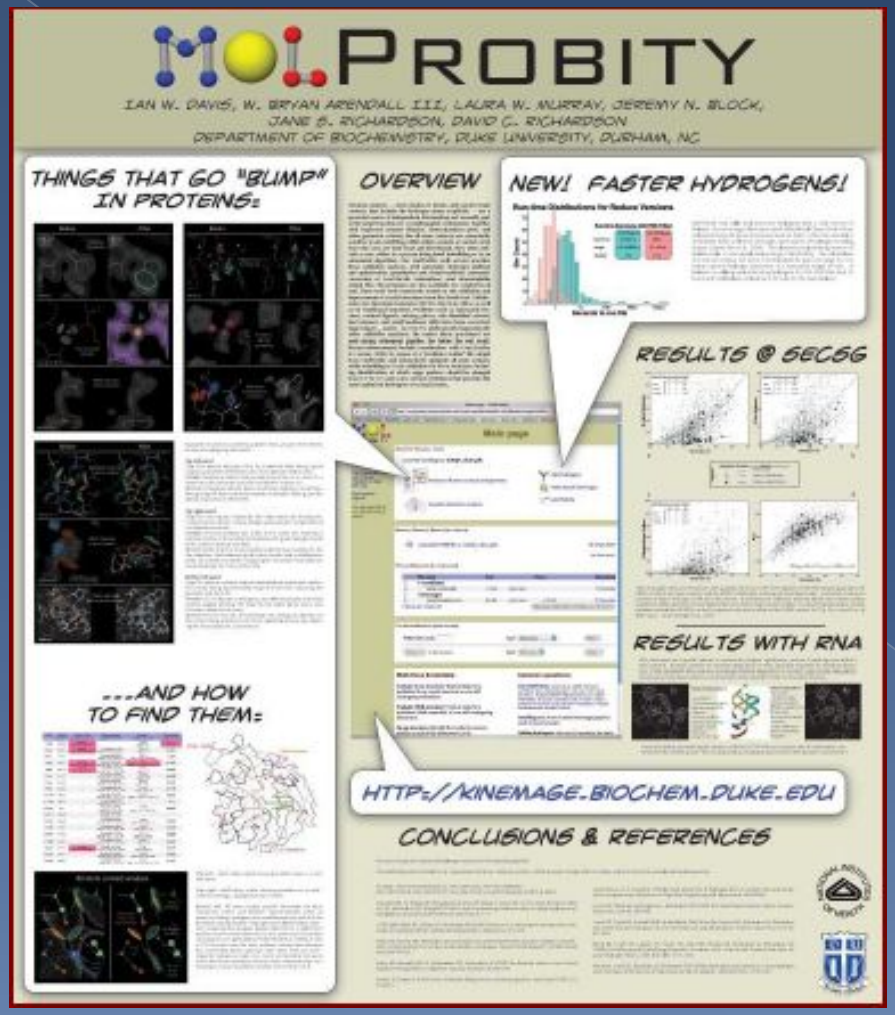
По способу размещения информации можно выделить два типа постеров:



Пример постера с полосным расположением частей:



Пример постера с модульным расположением частей:



Помните так же, что заголовки не должны совпадать по высоте:

- Ширину полосы лучше сделать около 40 знаков –такой текст читается быстрее всего.
- В большинстве случаев для выделения лучше использовать *курсив, а не подчеркивание*

Советы и рекомендации

- * подготовьте постер и сообщение на 3-4 минуты заранее
- * при желании Вы сможете принести ноутбук и показывать с него дополнительные демонстрационные материалы (но, к сожалению, розетки в непосредственной близости от постера не будет)
- * рядом с постером можно разместить конверт с любым дополнительным материалом (визитки, лист обратной связи, копии постера и т.п.)

Помните!

- На чтение Вашего доклада не должно уходить более, чем 7 минут!
- Поэтому мы рекомендуем Вам делать текстовые отрывки не более 150 слов в длину.

Ваш текст не должен занимать более одной четверти площади стенда!

27-hydroxycholesterol is a Novel Endogenous Regulator of Estrogen Receptor Activity

Carolyn D. DuSell and Donald P. McDonnell.
Department of Pharmacology and Cancer Biology, Duke University Medical Center, Durham, NC 27710

Introduction

There are two isoforms of the estrogen receptor (ER), ERα and ERβ, which upon ligand binding regulate the transcription of target genes. In general, it is thought that the proliferative effects of estrogens are mediated primarily through ERα, whereas the anti-proliferative ones are through ERβ. There are three endogenous estrogen receptor agonists that activate both ERα and ERβ, the most potent being 17β-estradiol (E2).

The majority of breast cancers express ERα and rely on E2 as a growth stimulus, prompting the development of therapies aimed at reducing E2 levels, such as aromatase inhibitors. Unfortunately, many breast cancers become resistant to aromatase inhibitors, but continue to rely on ERα for growth. Tumor-infiltrating macrophages (TAMs), which are associated with increased tumor growth and decreased patient survival, possess high cytochrome P450 27A1 (CYP27A1) enzymatic activity and are therefore capable of producing 27-hydroxycholesterol (27HC), which we have shown to be a novel endogenous partial agonist for ER. It is therefore possible that macrophage infiltration of a breast tumor provides an alternate estrogenic ligand to promote tumorigenic behavior. Furthermore, the production of 27HC by either TAMs and tumor epithelial cells, and the estrogenic activities of 27HC, presents a potential mechanism for the development of resistance to aromatase inhibitors. Therefore, understanding the intricacies of the regulation of ER by 27HC and how this impinges on estrogen signaling will have a profound impact on estrogen-regulated biology, especially in breast cancer.

Hypothesis & Objectives

Hypothesis:

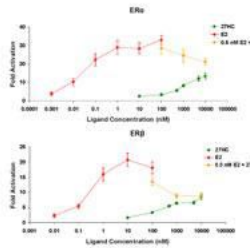
We hypothesize that 27HC is a partial agonist for ERα and ERβ that may contribute to therapeutic resistance in breast cancer.

Objectives:

- Determine whether 27HC is an ER agonist, antagonist, or Selective Estrogen Receptor Modulator (SERM).
- Define the role of 27HC in regulating ERα activity in ERα-positive breast cancer cell lines.

Results

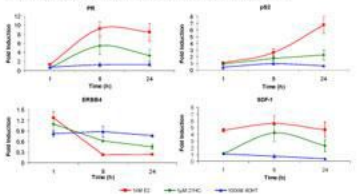
Figure 1. 27HC activates exogenous ERα and ERβ



ER-negative HeLa cells were transfected with pCDNA3.1nv5-ERα or -ERβ, a 3xERE-TATA-luc reporter, and a CMV-β-gal transfection control for 24 hours. Cells were treated with vehicle or increasing concentrations of E2 or 27HC for 22-26 hours, then harvested and assayed for luciferase and β-gal expression. Data is presented as mean ± SEM for three independent triplicate experiments.

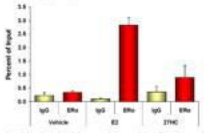
Results

Figure 2. 27HC regulates endogenous ERα target genes



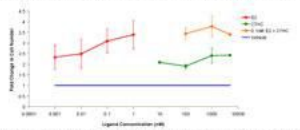
ERα-positive MCF-7 cells were plated in phenol-red free media containing 8% charcoal-stripped FBS at 2x10⁵ cells/ml. After 48 hours, the cells were treated with vehicle or ligand. At the indicated time, cells were harvested for RNA isolation and ER target gene expression was analyzed by RT-PCR. Threshold cycle values were normalized to the housekeeping gene 36B4. Data was then normalized to vehicle and is presented as mean ± SEM for three independent experiments.

Figure 3. 27HC treatment leads to recruitment of ERα at the estrogen response element in the pS2 promoter



MCF-7 cells were plated in phenol-red free media containing 8% charcoal-stripped FBS at 3.5x10⁶ cells/ml. After 72 hours, the cells were treated with vehicle, 100nM E2, or 10μM 27HC for 45 minutes. After cross-linking DNA and protein, protein and associated chromatin was harvested and subjected to immunoprecipitation with either IgG or ERα antibody. Following immunoprecipitation, cross-linking was reversed and DNA harvested for analysis by RT-PCR. Data is presented as the percent of DNA immunoprecipitated with ERα compared to the total amount of DNA present in the input.

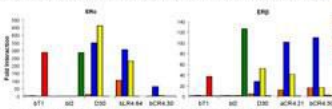
Figure 4. 27HC stimulates proliferation in ERα-positive breast cancer cells



MCF-7 cells were plated in phenol-red free media containing 8% charcoal-stripped FBS at 5x10⁴ cells/ml. After 48 hours, the cells were washed and the media was replaced with serum-free media for 24 hours. Cells were then treated with vehicle, E2, or 27HC for 48 hours. Treatment was replenished after 48 hours. On day 8, the increase in cell number was assayed using a DNA dye. Data is presented as the mean ± SEM for three independent triplicate experiments.

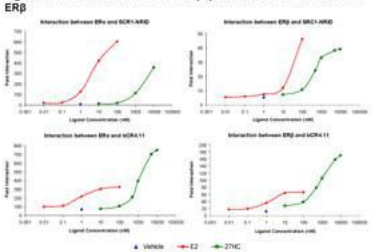
Results

Figure 5. 27HC induces a unique conformation of ERα and ERβ



ER-negative HepG2 cells were transfected with ER-interacting peptides fused to Gal4 to use as conformational probes of the receptor structure. VP16-ERα or ERβ, a 5xGAL4-TATA-luc reporter, and a CMV-β-gal transfection control were co-transfected with the peptides for 24 hours. Cells were subsequently treated with vehicle, 10μM 27HC, 100nM E2, 100nM 4OHT, or 100nM ICI for 22-26 hours. Cells were then harvested and assayed for luciferase and β-gal expression. Data is presented as the mean of one representative triplicate experiment.

Figure 6. 27HC allows for differential peptide recruitment to ERα and ERβ



HepG2 cells were transfected with VP16-ERα or ERβ, Gal4-peptide, 5xGAL4-TATA-luc reporter, and CMV-β-gal transfection control for 24 hours. Cells were subsequently treated with vehicle or increasing concentrations of 27HC or E2 for 22-26 hours. Cells were then harvested and assayed for luciferase and β-gal expression. Data is represented as the mean of one representative triplicate experiment.

Conclusions

- 27HC is a novel partial agonist that regulates both ERα and ERβ.
- 27HC stimulates proliferation in an ERα-positive breast cancer cell line.
- 27HC induces a unique conformation of both ERα and ERβ that allows for differential recruitment of ER-interacting peptides.

Future Directions

- Determine how 27HC influences breast tumor growth.
- Establish which cells produce 27HC within the tumor microenvironment and determine whether this ligand acts in an autocrine or paracrine manner.

Acknowledgements

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