
대한결핵 및 호흡기학회
제2차 Interactive Learning
Useful tips for
English Presentation

4/8/2022

서울아산병원 SCIENTIFIC PUBLICATIONS TEAM

임준서

소개

- 서울아산병원 Scientific Publications Team
 - Clinical/Basic research 논문 영문교정 (2400/year)
 - In-house editors (native, bilingual) + 전문교정업체
 - 논문 작성 및 투고 과정 전반에 대한 tailored 1:1 상담 제공

영어논문교정지원부(SPT)

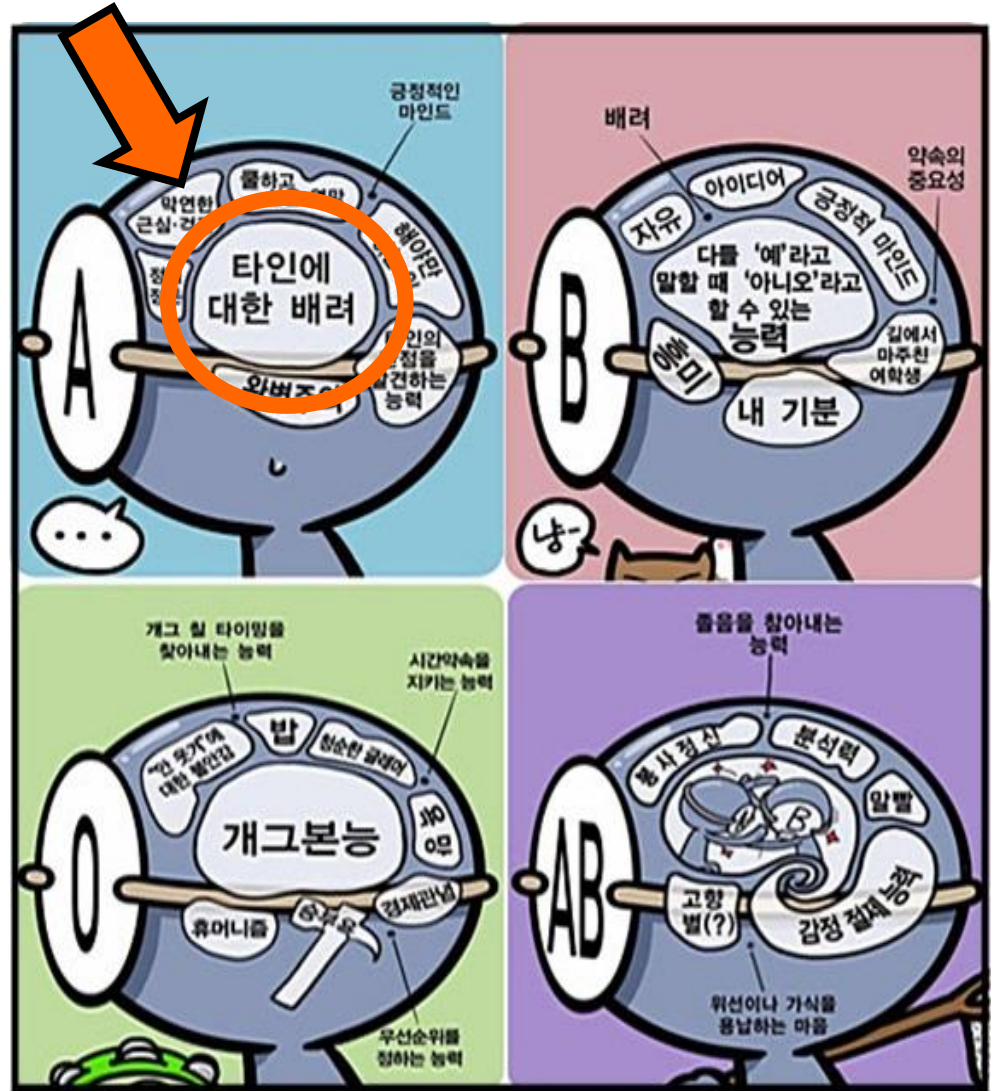
영어논문교정지원부는 원내 연구 결과물의 질적 향상을 위해 전문 교정 업체와 원내 전담 에디터를 통한 영문 교정 서비스를 제공하고 있습니다.



혈액형에 따른 성격

- A형
- B형
- O형
- AB형

구연발표를 준비할 때는
소심한 A형이 되자



소심하게 발표자료를 준비해야 하는 이유

■ 청중의 **관심도**는 종종 생각보다 낮다

어떻게 하면 주의를 끌 수 있을까?

- 내 연구 주제 ≠ 청중들의 연구 주제
- 피곤한 상태일 확률이 높은 사람들

■ 청중의 **이해도**는 보통 생각보다 낮다

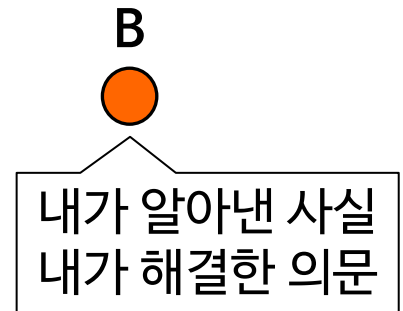
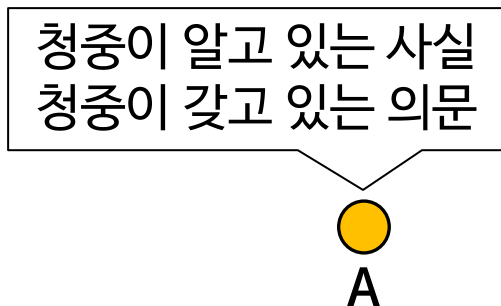
어떻게 하면 잘 이해시킬 수 있을까?

- 수십-수백 명이 한꺼번에 듣는 수업 < 1:1 과외가 효과적
- 집단이나 개인의 역량 문제 X
- “발표”라는 매체의 내재적 한계
 - 개개인의 배경 지식과 현장에서의 이해도를 고려하기 힘들
- 1:1로 대화할 때보다 전달력이 떨어지기 마련



소심하게 발표자료를 준비해야 하는 이유

- **관심도**도, **이해도**도 낮은 청중에게 왜 내가 배려해야 하는가?
- 발표자의 의무
 - 사실과 내용만 전달하는 것이 역할의 끝이 아님
 - 지적 흥미를 유발해서 관심 유도
 - 그 자리에 온 누구든지 알아들을 수 있게 구성
 - 그 날 귀가할 때 머리 속에 한 가지라도 남게끔 노력하는 것
 - Take-home message
- 발표 \approx 내비게이션

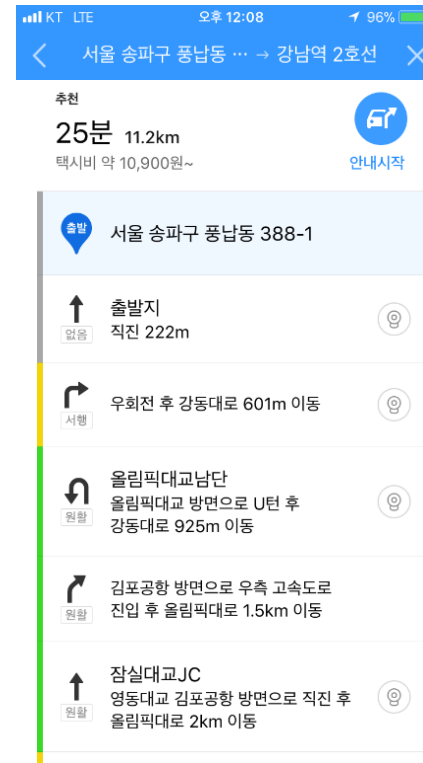
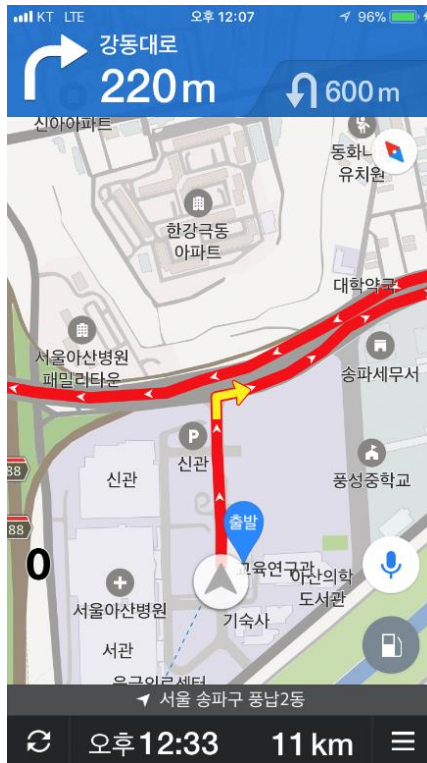


발표는 내비게이션이다

■ 좋은 내비게이션의 특성

1. 지시 내용이 간결하다
2. Step-by-step으로 지시한다
3. 최대한 많은 것을 그림을 통해 안내한다

발표 (연구) 내용:
나에게는 여러 번 가본 길
듣는 사람들에게는 초행길



구성

내용

디자인

기타

대본

애니메이션 및 전환 효과

- 내비게이션처럼 발표자료를 만들 때 가장 좋은 tool
- 애니메이션의 안 좋은 예
 - “회전”, “바운드”, “물결” 등
 - 발표의 전문성을 떨어뜨림
- 추천하는 애니메이션
 - “**밝기 변화**”, 재생 시간 0.5초
 - “**올라오기**”, 효과 옵션 방향 “아래에서”, 재생 시간 1.0초
 - “**뒤아내기**”, 방향 “왼쪽에서”, 재생시간 1.0초

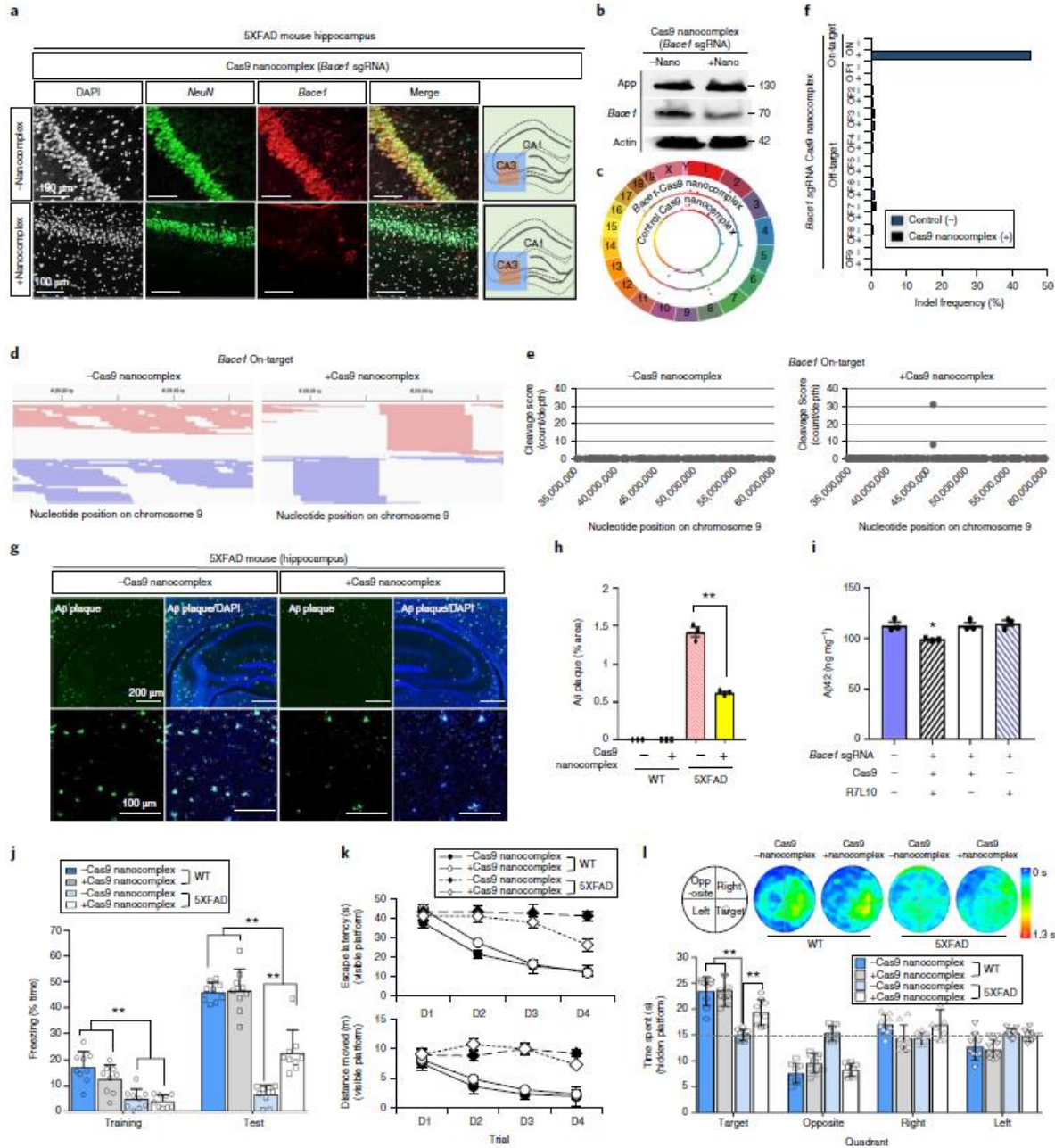
PowerPoint

PowerPoint

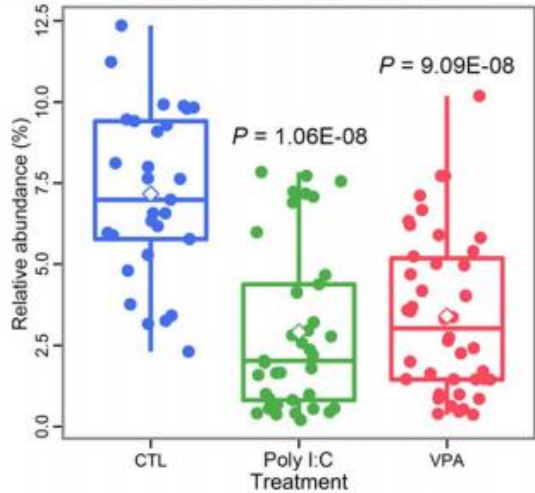
PowerPoint

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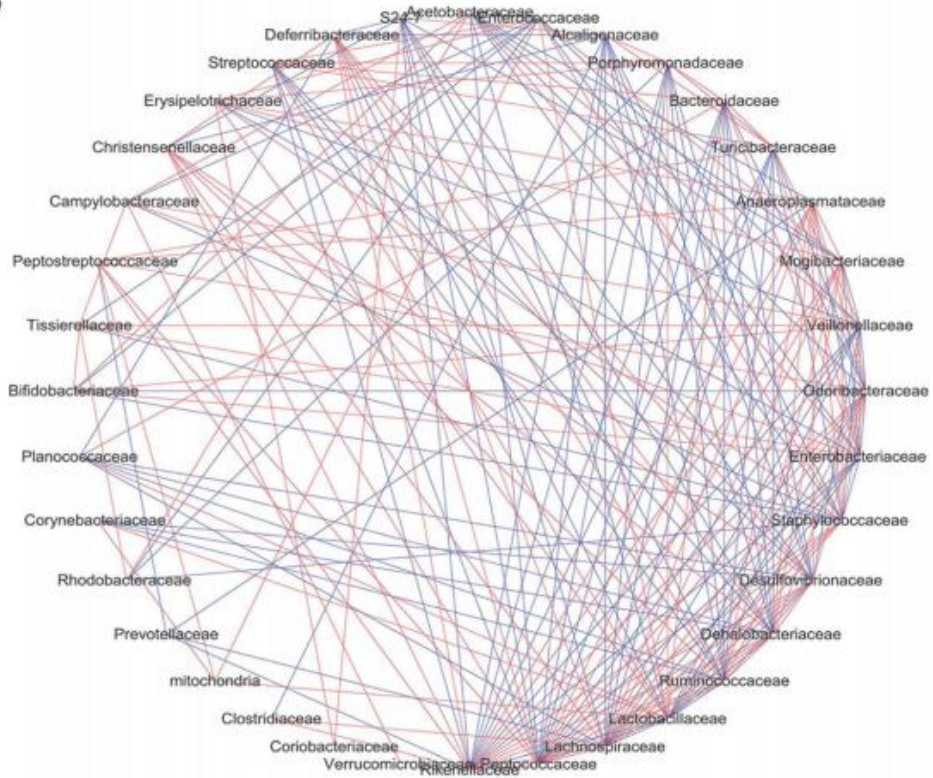




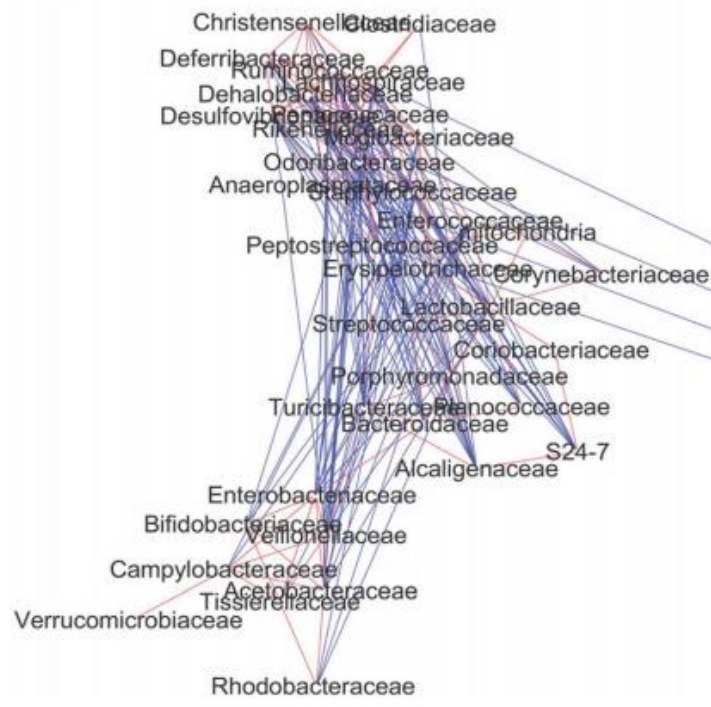
A Prevotellaceae



B

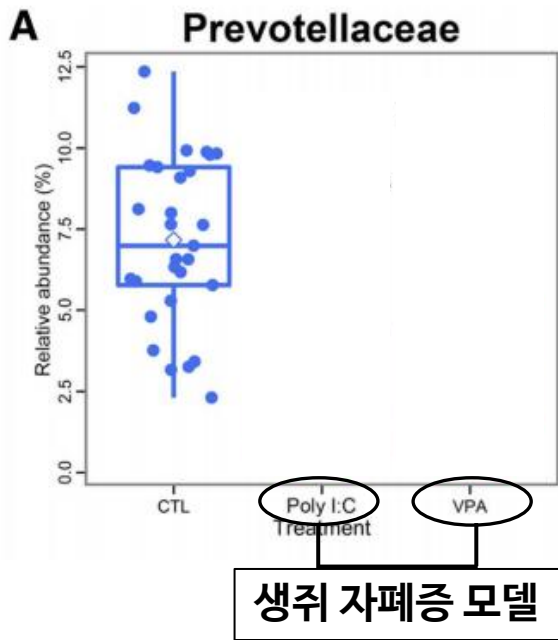


C



결론: Prevotellaceae는 대조군에 비해 자폐증 생쥐의 장에서 유의하게 적게 분포하고 있으며, 이는 다른 미생물로 인한 변화가 아닙니다.

Prevotellaceae



미생물 간 “연관성” 검사
 Blue line: positive correlation
 Red line: negative correlation

결론: Prevotellaceae는 대조군에 비해 자폐증 생쥐의 장에서 유의미하게 적게 분포하고 있으며, 이는 다른 미생물로 인한 변화가 아닙니다.

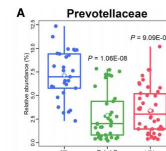
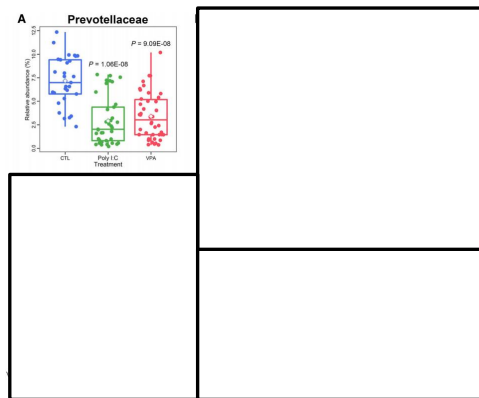
연관성에 가중치 부여
 Correlation strength ↑ : shorter line



애니메이션 및 전환 효과

■ 애니메이션 상세 사용법

1. 텍스트/데이터를 하나 하나씩 나타나게 하기 (“밝기 변화”)
2. 주의를 끌고 싶은 부분에 **동그라미** 화살표 등 나타나게 하기
 - 레이저 포인터: 산만해지기 쉬움, 계속 그곳을 바라보게 하기 힘들
3. 하얀 네모를 사라지게 하기 (빨간색 “밝기 변화”)
 - 텍스트 한 줄 내에서 뒷내용을
 - 복잡한 데이터에서 내용을 하나씩 보여주고 싶을 때
 - “삽입” - “도형” - 직사각형 (채우기 하얀 색, 테두리 없음)



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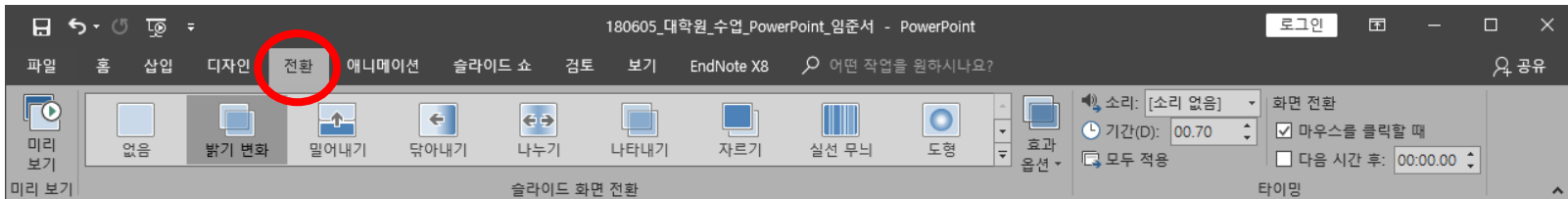
기타

대본

애니메이션 및 전환 효과

■ 전환 효과

- 화면 간 부드러운 넘김
- 새로운 정보를 보는데 있어 부담감을 줄여주는 효과
- 추천: “**밝기 변화**“, 기간 0.7초 혹은 0.5초



- 다른 효과들은 산만해지기 쉬움 (e.g., “**부서지기**”)

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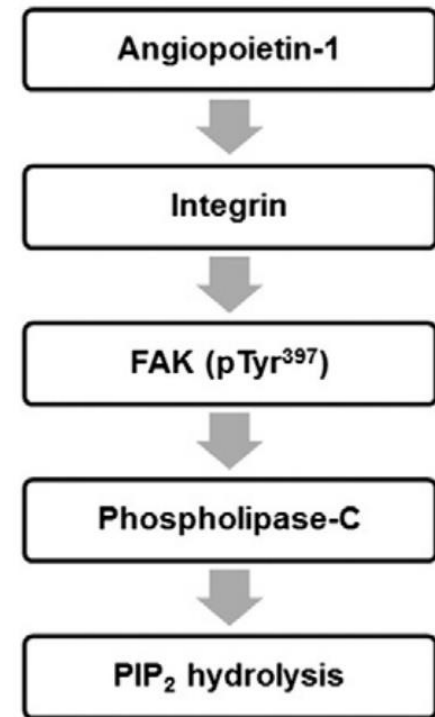
Progress Bar 사용하기

- 애니메이션: 작은 단위에서의 안내
- Progress bar: 큰 단위에서의 안내 (전체 흐름/맥락 알림)
- 필수 (X)
- 맥락 인지에 도움이 됨

- 각종 도형 (직사각형, 직선, 갈매기형 화살표)



- “삽입” - “SmartArt” - “프로세스형”



Biological pathway에도 사용 가능



페이지 넘버 기재하기

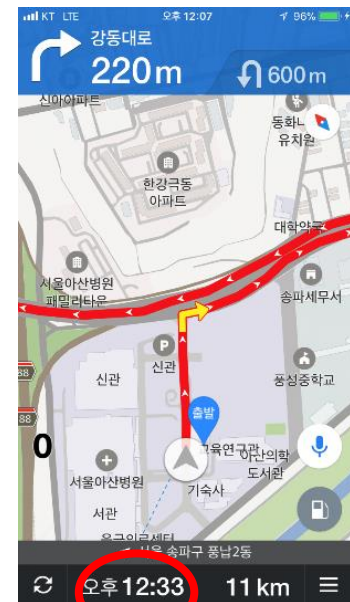
- 길을 안내 받는 사람 입장에서 가장 궁금한 것

→ “얼마쯤 왔어요?” “언제 도착해요?”



- 슬라이드가 많을 때

- 막판에는 듣는 입장에서 지치기 마련
- 언제 끝날 지 감이 안 잡히면
필요 이상으로 지루해지고 주의력 떨어질 수 있음
- 시계 쳐다보느라 더 집중이 안됨
- 화면 우측 하단에 페이지 넘버 기재
- 역효과: 주어진 시간은 짧는데 전체 페이지 수가 너무 **多**
- 적절한 길이의 발표자료 구성 중요!



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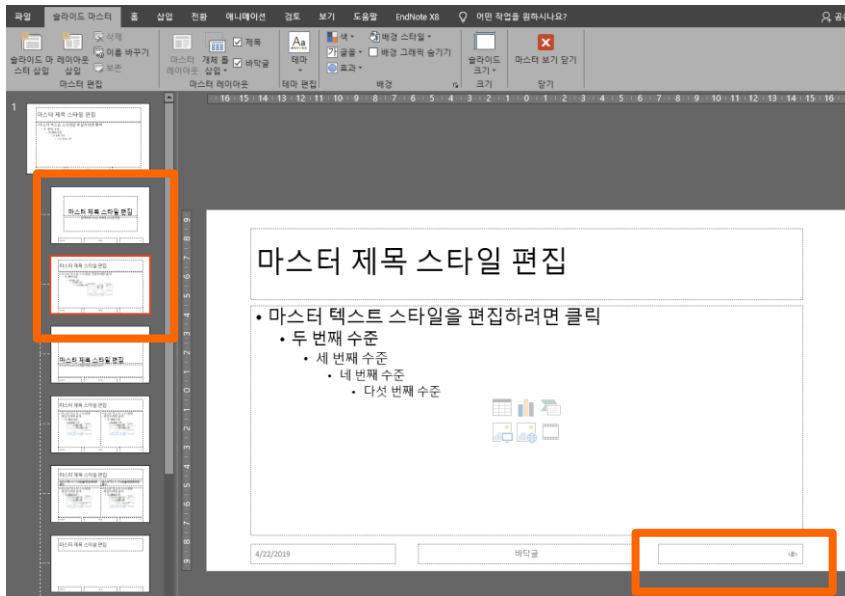
기타

대본

페이지 넘버 기재하기

■ 페이지 넘버 쉽게 기재하기

- 하나하나 적는 것도 가능하지만 엄청 귀찮고 수정 시 난감
- “보기” - “슬라이드 마스터”
- 제목 슬라이드와 본문 슬라이드
 - 우측 하단 <#> 옆에 / (총페이지수) 기입
- “삽입” - “머리글 / 바닥글” - “슬라이드 번호” - 모두 적용



- 폰트 크기: 충분히 크게 (> 18 pt)
- 폰트 색깔: 현재 슬라이드 번호는 또렷, 전체 페이지 수는 흐리게

<#> / 10

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발표시간에 맞는 자료 길이

- ****발표 시간 제한 반드시 엄수!****
- **아무리 좋은 내용의 발표라 해도...**
 - 주어진 발표 시간을 터무니 없이 넘겨 버리기
 - 시간에 쫓겨서 막판에 슬라이드들 막 넘기고 급하게 끝내기
→ 스트레스, 실망, 다음 연자에게 실례, 전문성 ↓
- **보통 허용되는 오버타임**
 - 15분 발표: 1~2분
 - 30분 발표: 2~3분
 - 60분 발표: ~5분
 - *요즘은 더 칼같이 지키는 추세*



발표시간에 맞는 자료 길이

- Take-home message의 직접적인 뼈대가 되는 내용만 제시
- 조금이라도 덜 중요한 table 등 데이터는 hidden slide로…
 - Hidden slide: 슬라이드 오른쪽 클릭 - “슬라이드 숨기기”
 - 슬라이드쇼 시에는 넘어가게 됨
 - PPT 자료 맨 끝에 hidden slide를 몰아 놓고, 발표 후 질문이 들어왔을 때 필요하면 클릭해서 보여주기
- *까다로운 질문에 대답하기*
 - 마지막 슬라이드에 이메일 주소 띄워놓기
 - 쉬는 시간으로 답변 미루기
 - Thank you for the question.
Would it be ok if we continue the discussion during the break?

구성

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대본

텍스트 관련 가이드라인

- ****가독성!****
- 영문 기준 한 줄에 7단어 가량, 한 슬라이드에 7줄 이내
- 문장형 서술 최대한 피하기 (논문에서 그대로 긁어오는 것 지양)
- **Bullet point** 방식으로
- Conclusion: our study on mouse model of SARS-CoV-2 infection showed that while drug A was effective for reducing airway inflammation, it did not significantly reduce viral load.
- Conclusion
 - Mouse model of SARS-CoV-2 infection
 - Drug A
 - ↓ airway inflammation
 - No reduction in viral load

구성

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텍스트 관련 가이드라인

- ****가독성!****
- Table: 글씨 잘 보이게 잘라서 배치
- 동그라미 강조
 - “삽입” - “도형”
 - 채우기: 없음, 윤곽선: 굵게 (1~3pt)
- 하이라이트 강조
 - 노란 직사각형 - 오른쪽 클릭 - “도형 서식” - “채우기” - “투명도” - 70~80%
- 애니메이션 적절히 사용
 - 내가 가졌던 사고의 흐름을 똑같이 따라올 수 있도록

TABLE I. Patient characteristics and prior treatments (n=37)

Characteristic	Median (range) or No. (%) of patients/sites/cycles
Age (years)	52 (29-70)
ECOG PS at cycle 1	
0	4 (10.8)
1	29 (78.4)
2	4 (10.8)

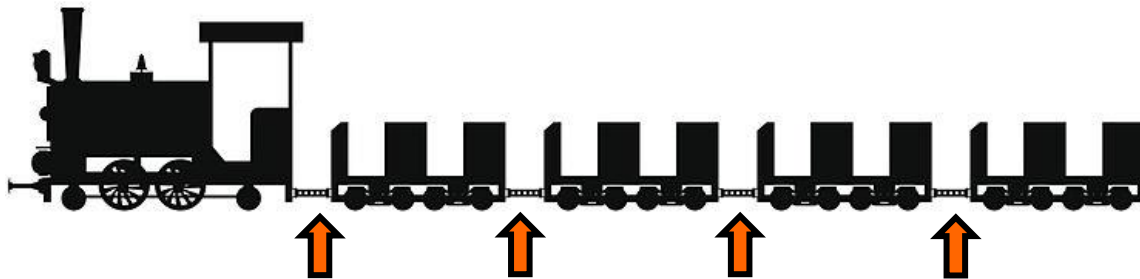
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Age (years)	52 (29-70)
ECOG PS at cycle 1	
0	4 (10.8)
1	29 (78.4)
2	4 (10.8)
Time since last anti-HER2 therapy	32 (14-274)
No. of disease site(s)	
1	4 (10.8)
2	12 (32.4)
3	12 (32.4)
≥4	9 (24.3)
Disease site(s)	
Lymph nodes	27 (73.0)
Lungs	20 (54.1)
Bones	19 (51.4)
Liver	12 (32.4)
Soft tissue/skin	11 (29.7)
Brain	9 (24.3)
Breast	7 (18.9)
Others	3 (8.1)
Prior adjuvant treatment	
Neo/Adjuvant trastuzumab	13 (35.1)
Neo/Adjuvant chemotherapy	
Anthracycline-containing only	6 (16.2)
Taxane-containing only	7 (18.9)
Anthracycline- and taxane-containing	8 (21.6)
Neo/Adjuvant endocrine therapy	
Tamoxifen	7 (18.9)
Aromatase inhibitors	1 (2.7)
Adjuvant radiation therapy	19 (51.4)



앞뒤 연결고리 만들기

- 슬라이드 간 **유기적** 연결고리를 드러내야 함
- Introduction / Discussion 관련 내용 연결고리 만들 때
 - 동일한 단어 반복 사용, 접속사 활용
- Result에서 다음 실험/결과로 자연스럽게 넘어가려면
 - 다음 슬라이드의 내용을 시사하는 질문 추가



구성

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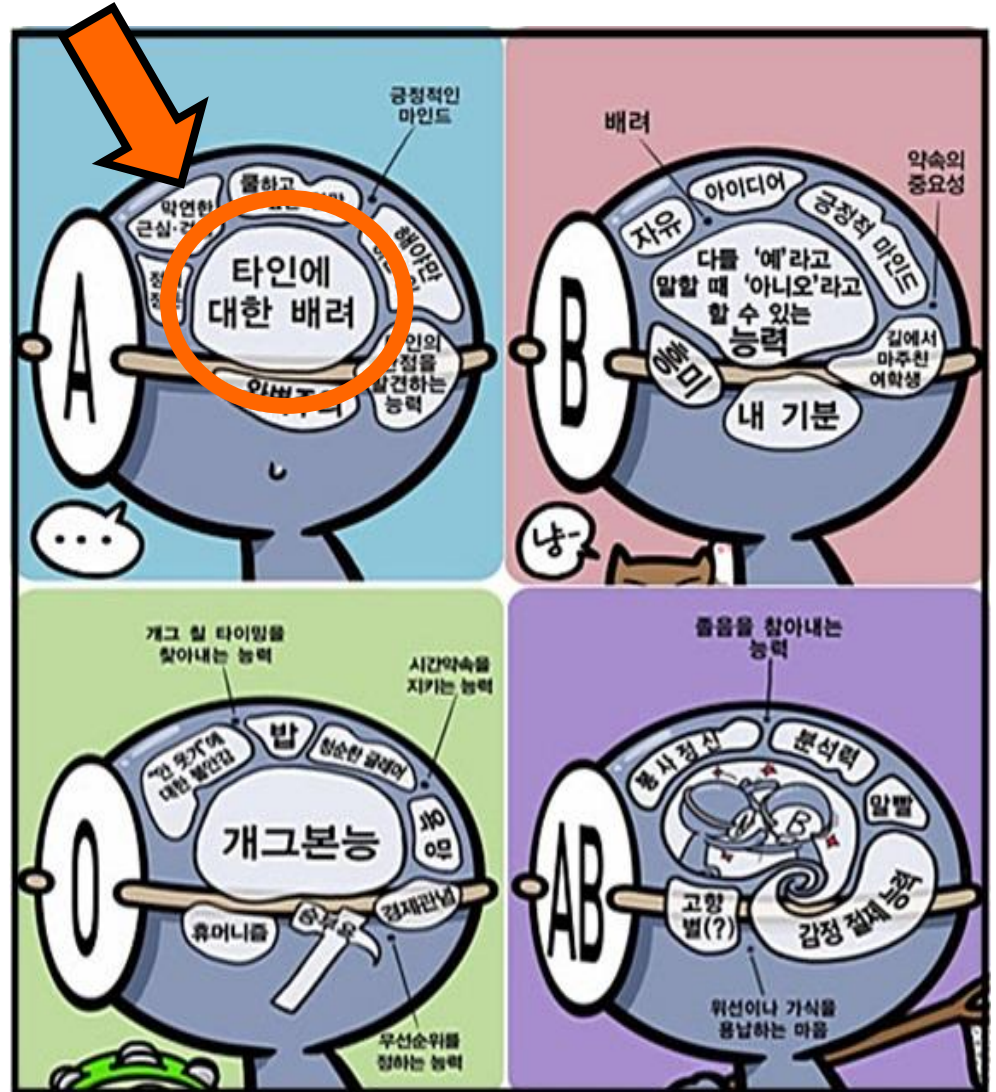
기타

대본

혈액형에 따른 성격

- A형
- B형
- O형
- AB형

구연발표를 준비할 때는 **소심한** A형이 되자



소심하게 발표자료를 준비해야 하는 이유

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어떻게 하면 주의를 끌 수 있을까?

- 내 연구 주제 ≠ 청중들의 연구 주제
- 피곤한 상태일 확률이 높은 사람들

■ 청중의 **이해도**는 보통 생각보다 낮다

어떻게 하면 잘 이해시킬 수 있을까?

- “A person is smart; people are [not].”
- 수십-수백 명이 한꺼번에 듣는 수업 < 1:1 과외
- 집단이나 개인의 잘못이 아님
 - 개개인의 배경 지식과 현장에서의 이해도를 고려하기 힘든 “발표”라는 매체의 내재적 한계
- 1:1로 대화할 때보다 전달력이 떨어지기 마련



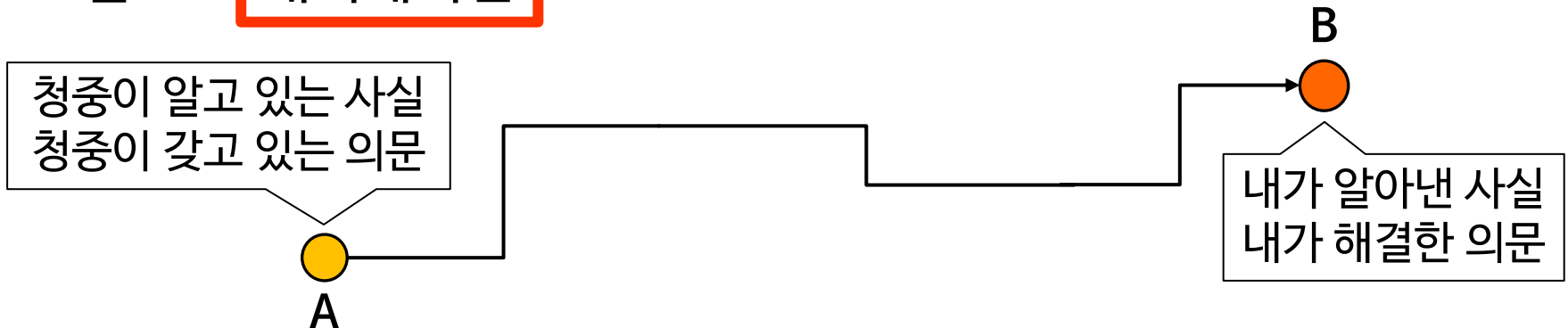
소심하게 발표자료를 준비해야 하는 이유

■ **관심도도, 이해도도** 낮은 청중에게 왜 내가 배려해야 하는가?

■ 발표자의 의무

- 사실과 내용만 전달하는 것이 역할의 끝이 아님
- 지적 흥미를 유발해서 관심 유도
- 그 자리에 온 누구든지 알아들을 수 있게 구성
- 그 날 귀가할 때 머리 속에 한 가지라도 남게끔 노력하는 것
 - Take-home message

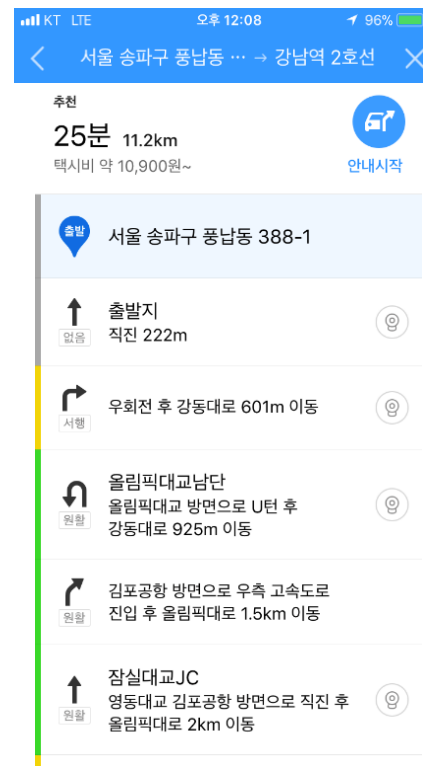
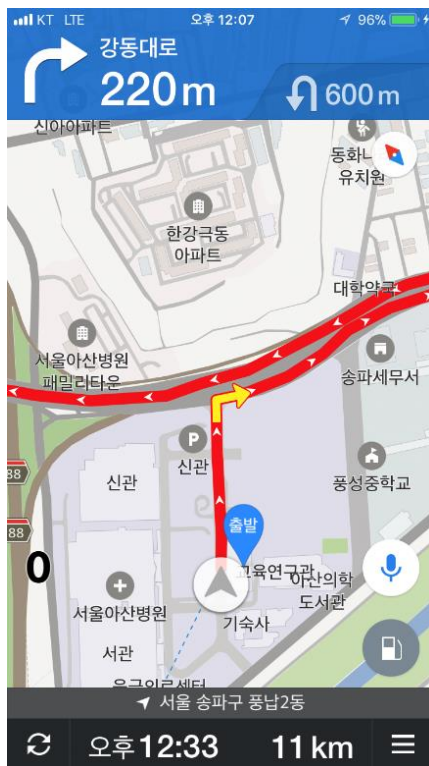
■ 발표 \cong **내비게이션**

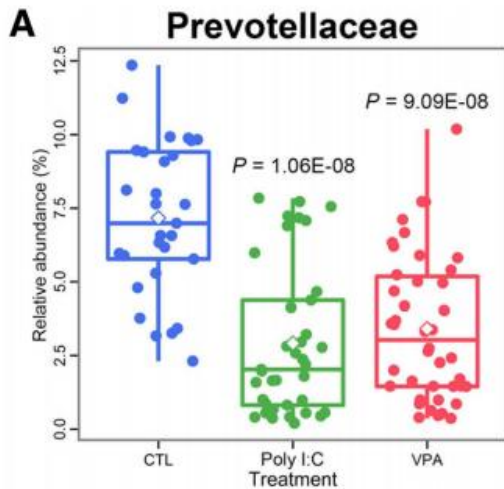


발표는 **내비게이션**이다

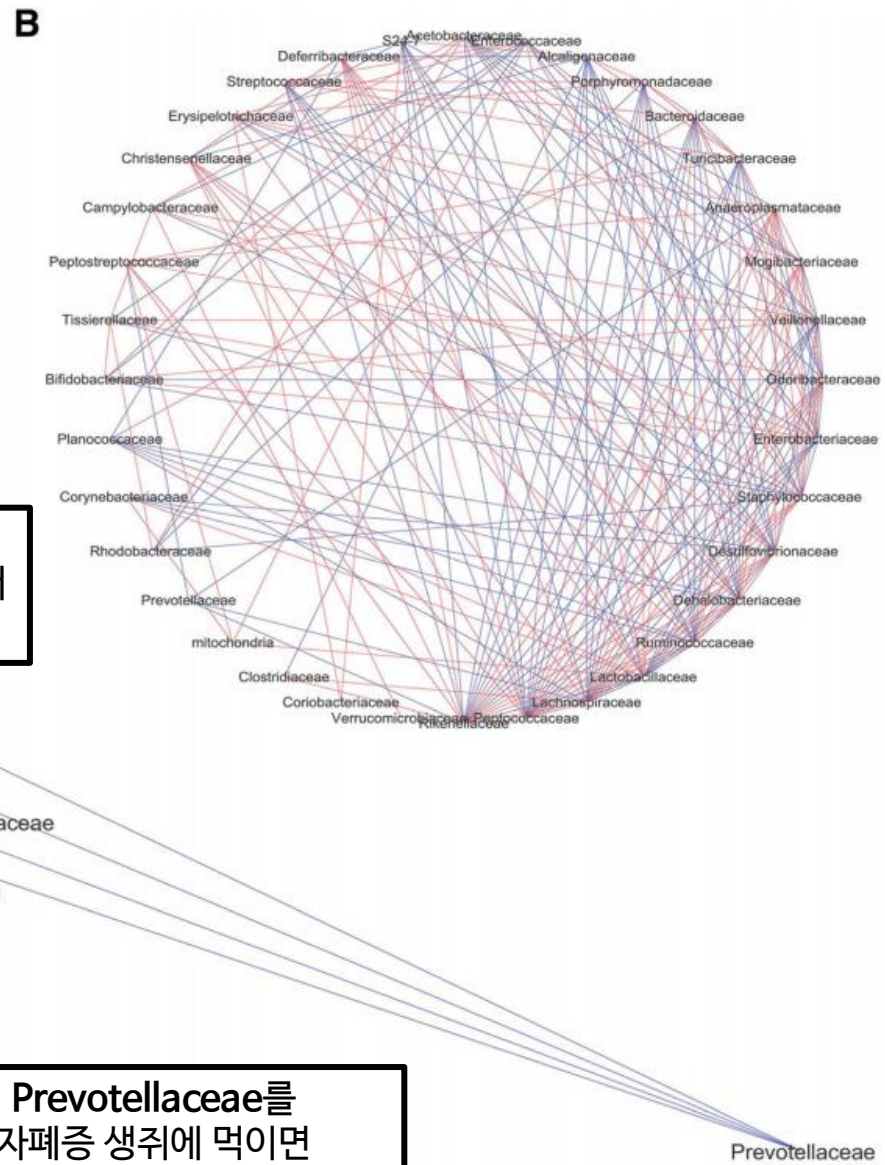
■ 좋은 내비게이션의 특성

1. 지시 내용이 **간결**하다
2. **Step-by-step**으로 지시한다
3. 최대한 많은 것을 **그림**을 통해 안내한다





결론: Prevotellaceae는 대조군에 비해 자폐증 생쥐의 장에서 유의미하게 적게 분포하고 있다.



Prevotellaceae를 자폐증 생쥐에 먹이면 자폐증 양상에 변화가 생길까?

디자인 - 폰트

■ 폰트 종류

- 세리프 (serif)
 - Times New Roman, Georgia, Century
- 산세리프 (san serif)
 - 맑은 고딕, Arial, Calibri, Helvetica

세리프 AaBbCc
산세리프 AaBbCc

■ 폰트 크기

- 제목: 40~32 pt
- 본문: 24~18 pt

■ 폰트 색깔

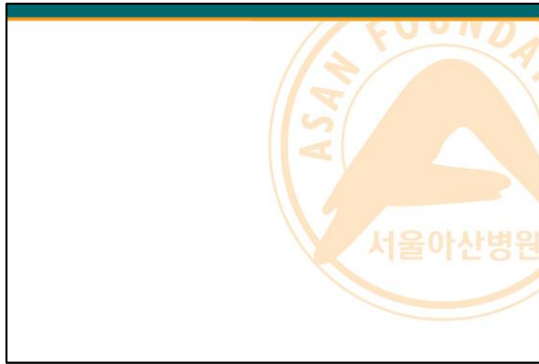
- 기본: 흰 바탕에 검은 폰트, 어두운 바탕에 흰 폰트
- 강조할 때: Red, orange, blue 등
- Yellow: 화면에 따라 잘 안보이거나 눈이 아픔



디자인 - AMC 배경 샘플

■ Title 화면

- 소속, 주제 등이 잘 드러나는 배경 이미지 사용 가능



구성

내용

디자인

기타

대본

디자인 - 배경 스타일

■ 본문 화면

- 워터마크나 그림이 없는 배경이 좋음
 - 글씨 가독성에 방해 되지 않도록 투명도 ↑
 - 학회에서 발표 template을 제공하는 경우도 있음

◦ 띠 디자인: 눈에 편한 색깔 위주 (초록색, 연한 파란색, 짙은 회색 등)

◦ 병원 로고 등 작게 사용해도 좋음



구성

내용

디자인

기타

대본

디자인 - 나만의 배경

- “보기” - “슬라이드 마스터”
 - 배경 이미지 삽입 및 수정 가능 (흐리게)
 - 폰트 일괄 변경 등 가능

- 슬라이드 크기 및 비율
 - 발표하게 되는 곳 상황에 따라 다름
 - 프로젝터는 표준 (4:3)이 많이 쓰임
 - 모니터로 발표 시 와이드 (16:9)가 빈 공간 없음
 - 발표하고자 하는 내용에 따라 선택
 - 와이드는 위아래로 좁음
 - 텍스트를 여러 줄 담는 것이 힘들

구성

내용

디자인

기타

대본

레이저 포인터

- 실제 레이저 포인터 사용
 - 조준 힘들고, 보는 사람 눈 아프거나 정신 없을 수 있음
- 가상 레이저 포인터 사용
 - (1) 아예 레이저 포인터만 사용하고 싶을 경우
 - 슬라이드쇼 시작 → 오른쪽 클릭 → “O” (포인터 옵션) → “L” (레이저 포인터)
 - **클릭으로 슬라이드 넘김 불가능해짐**
 - 키보드 화살표 (← →)로 슬라이드 이동 가능
 - 원래대로 돌리려면 다시 오른쪽 클릭 + O + L
 - (2) 가끔 사용하고 싶은 경우
 - 슬라이드쇼 중에 Ctrl 누른 채로 마우스 포인터를 클릭
 - 클릭하고 있는 동안 레이저 포인터로 사용 가능
- **발표장 Microsoft PowerPoint가 옛날 버전일 경우 사용 불가**
- 과도한 레이저 포인터 사용 (X) → 애니메이션 활용이 더 효과적

구성

내용

디자인

기타

대본

발표자 보기 화면

■ 발표자 보기

- 청중이 보는 모니터: 슬라이드쇼
- 내가 보는 화면: 현재 슬라이드 + 발표자 노트 + 다음 슬라이드 미리보기

구성

내용

디자인

기타

대본

The image displays two side-by-side screenshots of a Beamer presentation software interface. The left screenshot shows the '디자인 - 폰트' (Design - Font) slide in a presentation view. The slide content includes sections for '폰트 종류' (Font Type), '폰트 크기' (Font Size), and '폰트 색깔' (Font Color). The right sidebar shows a navigation menu with '구성' (Structure), '내용' (Content), '디자인' (Design), '기타' (Other), and '대본' (Script) buttons. The '디자인' button is highlighted. The right screenshot shows the same slide in a '다음 애니메이션' (Next Animation) preview view. This view highlights design elements such as '폰트 종류' (Font Type), '폰트 크기' (Font Size), and '폰트 색깔' (Font Color). The '디자인' button in the sidebar is also highlighted. The bottom of the interface shows a navigation bar with a play button and the text '슬라이드 25/34'.

발표자 보기 화면

- 발표자 보기
 - “슬라이드 쇼” → “발표자 보기 사용” 선택
 - or 슬라이드쇼 시작 후 오른쪽 클릭 → “발표자 보기 표시”
- ****발표 장소/환경에 따라 사용 불가할 때가 많음****
 - 노트북을 따로 가져가서 HDMI 선이나 VGA 선으로 연결하면 가능할수도
 - 대본 외우는 것이 부담스러울 때 보통 사용
 - 효과적인 대본 작성법?

구성

내용

디자인

기타

대본

대본 작성 기본 가이드라인

- 연구결과 발표 시 주어: “We”
- 가능하면 **능동태** 사용하기
 - The samples were analyzed. → We analyzed the samples.
- 의미를 훼손하지 않는 한 가장 **단순한 표현** 쓰기
 - Questions remain as to whether... → We are not sure if...
- **접속사** 적극 활용
 - Therefore, Also, Consequently, Furthermore, However...
- 한 문장 당 **15~20단어** 언저리로 작성
 - 중간 중간 짧은 문장 (5~7단어) 넣어주면 적절한 리듬감 생성
 - ex. These are the main findings. This graph shows the overall survival.
- 문장 중간에 잠시 쉬어야 하는 부분들에 “/” 넣어서 표시
 - 심표, 긴 주어 뒤, or 앞
- 발음을 뭉개는 줄임말 지양하기
 - “I’d like to present...” → “I would like to present...”

구성

내용

발표 방식 3가지

- 발표자 화면
- 대본 프린트
- 외우기

라인

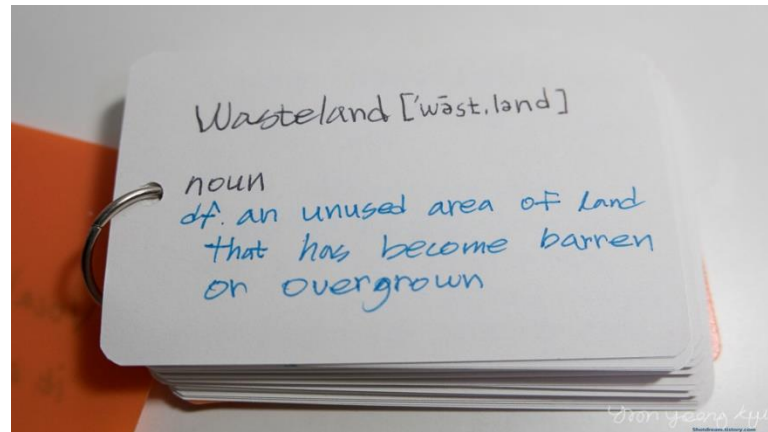
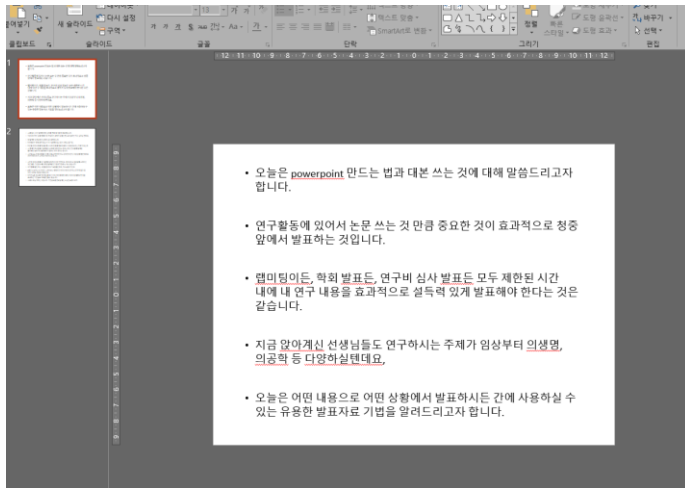
기타

대본

대본 프린트 읽으며 발표

■ 대본 프린트

- 대본 슬라이드 만들기 → 4:3 비율 슬라이드, 텍스트 상자만 넣어서
- 대본 슬라이드 한 장 당 실제 발표 슬라이드 한 장의 내용이 담기게



- 인쇄 → 유인물 → 2슬라이드 (작게 뽑고 싶으면)
- 양이 적으면 스테이플러, 양이 많으면 단어장 (플래시카드)
- ****발표 슬라이드를 넘길 때마다 (클릭, 화살표) 대본도 한 장씩 넘겨가며****

구성

내용

디자인

기타

대본

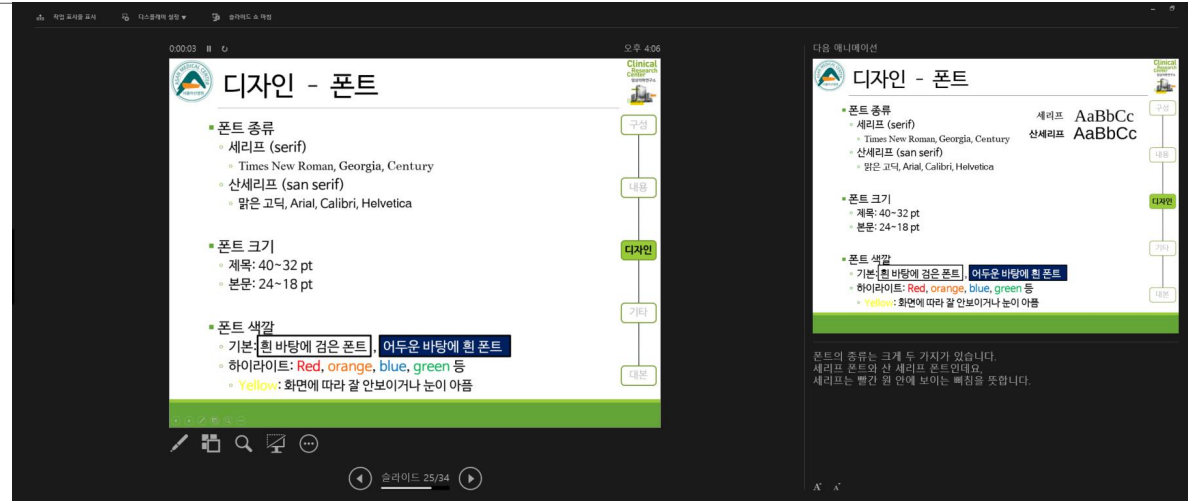
대본? 발표자 화면? 외우기?

■ 발표자 화면

- 안되는 상황 多
- 내 모니터만 뚫어져라..

■ 대본

- 어두워서 안 보임..
- 프린트만 뚫어져라..



■ 외우기+즉흥으로 발표하는 것 추구

- 연습이 필요하지만 가장 효과적인 발표 방식
- 청중이 보는 화면과 청중을 번갈아 보면서 발표하기 위해
 - 청중 상태를 파악하며 상황에 맞춰 부연 설명 등을 곁들이기 쉬움
- 대본 (발표자 화면, 프린트) 사용시 정해온 내용에 갇히게 됨

외워서 발표하기 (+ 즉흥)

■ 처음 1~2 슬라이드를 제일 많이 연습하기

- 가장 떨리는 부분 → 여기만큼은 한 단어 한 단어 외우기

■ 화면 간 전환 연습 하기

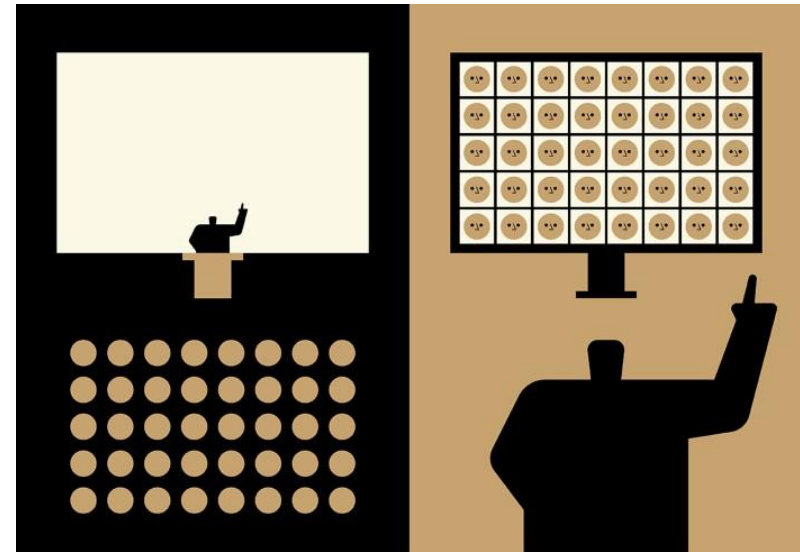
- 화면 안의 내용 설명은 상대적으로 쉬움
- 슬라이드 넘긴 후 음..하는 순간을 줄이는 것이 좋음
 - 앞 뒤 내용을 부드럽게 연결하기
 - 넘기기 전: Based on these results, we then tested whether...
 - 넘긴 후: Based on previous results, we tested whether...
- 넘기기 전 슬라이드에 유기적 연결을 위한 질문 상자 추가하기
 - 청중과 발표자에게 모두 도움이 됨

Why did ** decrease after surgery?

What is the effect of drug A on metastasis?

학회

- 한동안은 virtual/hybrid meeting이 대세



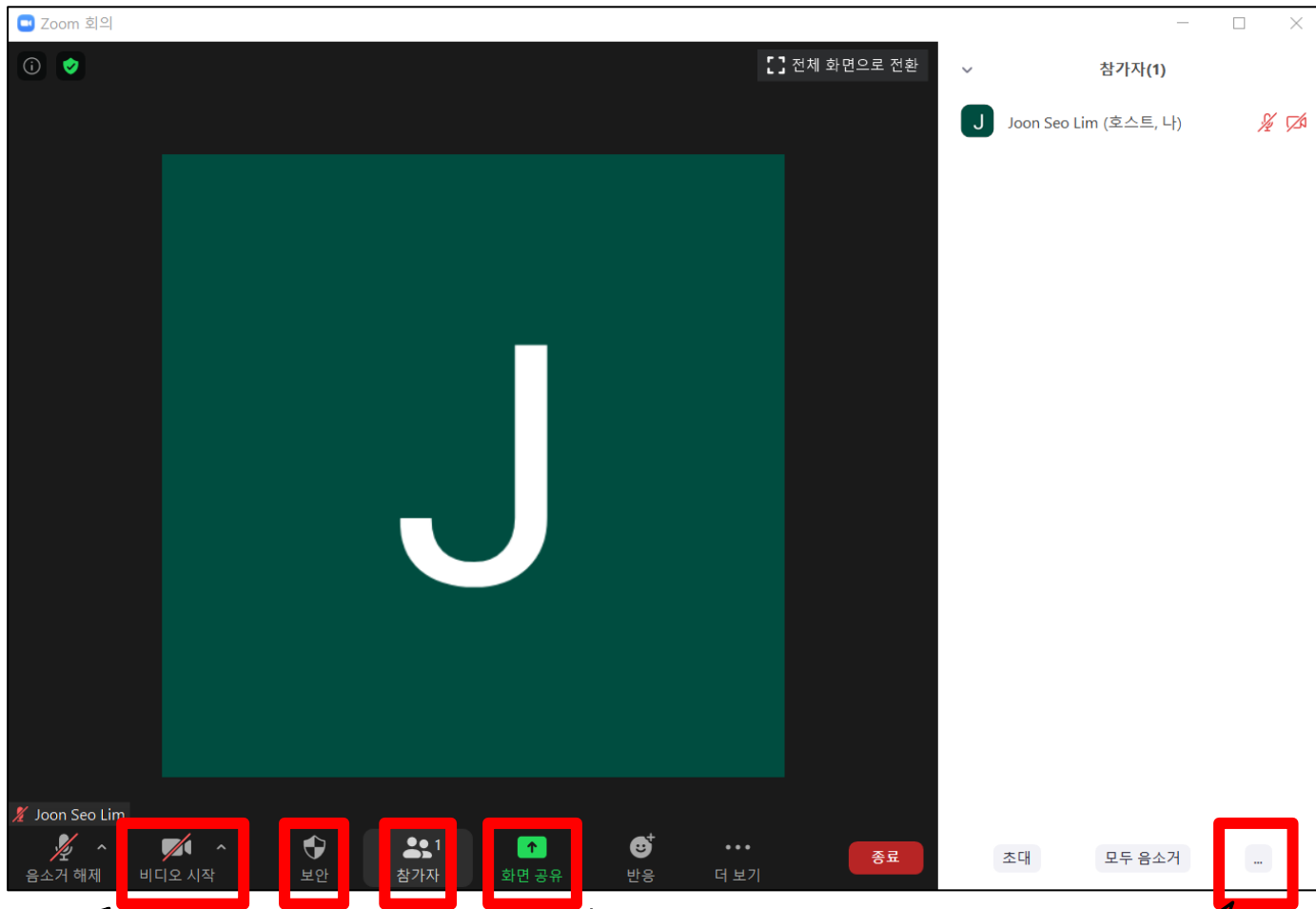
Nature 582, 166–167 (2020)

학회

- 한동안은 virtual/hybrid meeting이 대세
- 강의/구연발표
 1. 지정된 장소에서 라이브 송출
 2. 녹화 파일 업로드
 3. Zoom
 - 회의 참가나 호스트 시 유용한 tip



Zoom



가상배경

“대기실”
사용 유무

참가자
일괄 컨트롤

화면 공유
(PPT, 동영상)

참가자 일괄
음소거 기능

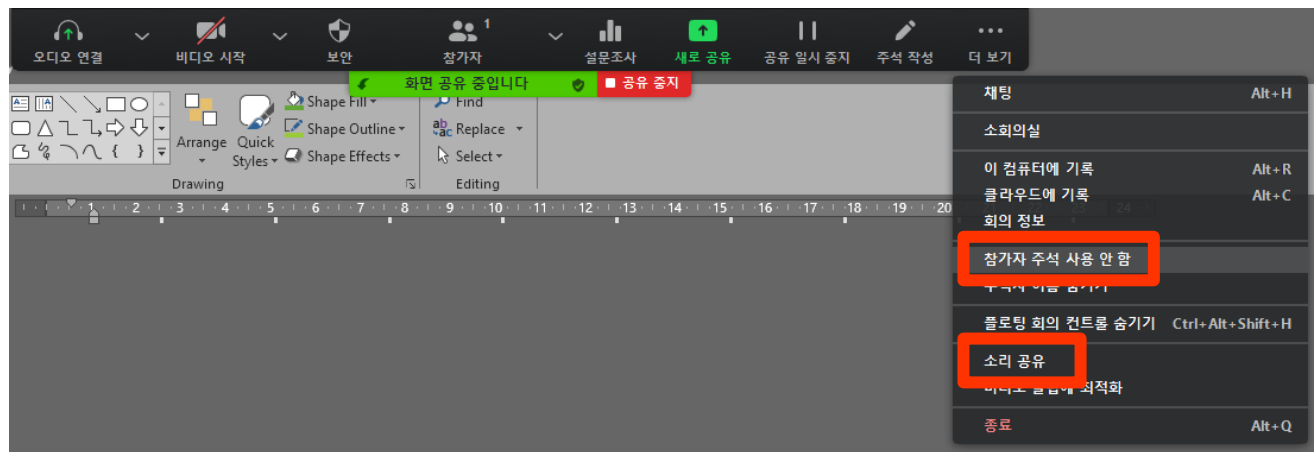
Zoom

- 가상배경: 참여자 뒷 배경을 특정 이미지로 대체
 - 뒷 배경을 깔끔하게 하는 효과
 - 한 명 이상이 카메라 앞에 있다면 가상 배경 사용 시 다른 사람들은 사라지기도 함



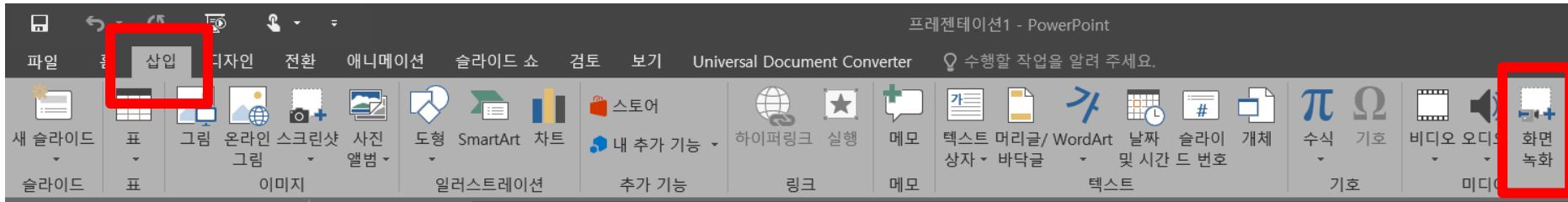
Zoom

- 대기실 옵션 끄기 (회의를 호스트 할 시)
 - Zoom에 기본 옵션으로 켜져있기도 함
 - 호스트가 사람들을 직접 입장시켜줘야 해서 번거로우니 끄는 것 추천
- 화면 공유 (PPT, 동영상 등)
 - 내가 호스트고 다른 사람이 공유할 수 있게 할 때
 - 화면 공유 버튼의 “^” 클릭 → 고급 공유 옵션 → 누가 공유할 수 있습니까? “모든 참가자” 클릭
 - 비디오 공유할 시: 화면 상단에서 “더 보기” → “(컴퓨터) 소리 공유” 클릭
 - 참가자 주석 사용 막기: “더 보기” → “참가자 주석 사용 안 함”

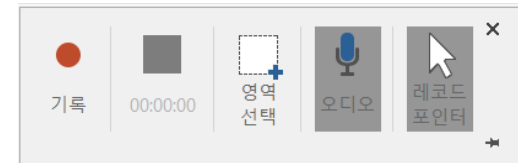


PowerPoint 녹화하기

- “슬라이드 쇼” 탭 → “슬라이드 쇼 녹화”
 - 슬라이드 간 넘길 때 녹음이 잘 안될 수 있어 발표 내용이 끊어질 수 있음
- PowerPoint 2016 기준 추천 방식: “**화면 녹화**”
 - “삽입” 탭 → “화면 녹화” (보통 오른쪽 끝)

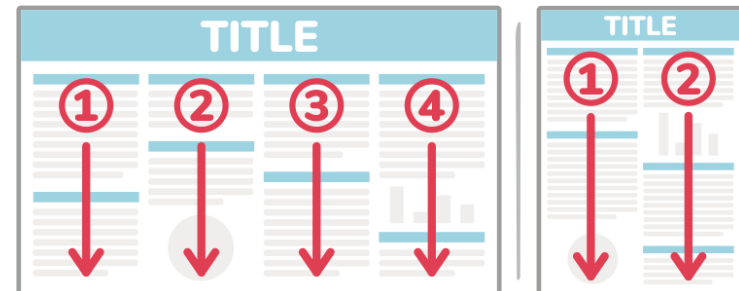


- 파워포인트로 돌아와서 슬라이드 쇼 시작 후 “기록” 클릭
- 슬라이드 쇼 끝난 후 마우스를 화면 상단으로 가져가면 뜨는 창에서 중지 클릭
- 첫 슬라이드에 동영상 파일 생성되어 있음
 - 오른쪽 클릭 → “다른 이름으로 미디어 저장”
- 비디오 용량 줄이기: 곰믹스 추천



포스터 만들기

- 학회 포스터 세션
- 정보의 양
 - 논문 > 포스터 > 초록
 - 초록+부가 설명+Table/Figure = 포스터
- 구성
 - 제목
 - Background/Introduction
 - Methods
 - Results (text+figure)
 - Conclusion
 - Acknowledgment (funding 등)



Protective effects of zinc and cAMP against A2E-induced toxicity in ARPE-19 cells : Possible involvement of lysosomal acidification



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2480 - C0146

Abstract

Purpose: Dry age-related macular degeneration (AMD) is characterized by accumulation of drusen and degeneration of photoreceptor cells and retinal pigment epithelial (RPE) cells. It has been proposed that dysfunctional lysosomes in RPE cells contributes to dry AMD pathology by hindering the degradation of shed photoreceptor membranes. We have previously shown that raising intracellular zinc levels can restore lysosomal acidity, and several studies have shown that raising cAMP levels may restore acidity and degradative functions of lysosomes. In the present study, we examined the effects of zinc and cAMP on lysosomal alkalization and dysfunction in an *in vitro* model of AMD.

Methods: To induce lysosomal dysfunction in ARPE19 (human RPE cell line), we used A2E (lipofuscin derivative) and chloroquine (CQ, lysosomal alkalinizing drug). We quantitatively assessed A2E-induced cell death by measuring the amount of lactate dehydrogenase (LDH) released into the culture medium. In addition, we observed the effects of zinc and dibutylryl cAMP on lysosomal acidity and degradative functions in A2E-treated ARPE19 cells. Lysosomal pH of the cells treated with cAMP or clioquinol (ClioQ, zinc ionophore) was measured with LysoSensor and LysoTracker.

Results: Twenty-four hours after A2E treatment, ARPE19 cells exhibited autofluorescence throughout the cell body, and showed significant amount of cell death (54.8 ± 4.8 % LDH release). A2E plus CQ-treated cell showed increased cell death. Addition of zinc or dibutylryl cAMP significantly reduced cell death by 20 – 30% in both cases ($P < 0.05$). A2E accumulated in lysosomes, and LysoTracker signals decreased, signifying lysosomal alkalization. Moreover, both zinc and cAMP decreased A2E autofluorescence and restored lysosomal pH to the acidic range.

Conclusions: Our results showed that adequate levels of zinc or cAMP protected ARPE19 cells against A2E-induced toxicity, which contribute to the pathogenesis of AMD.

References

- Seo BR, Lee SJ, Cho KS, et al. The zinc ionophore clioquinol reverses autophagy arrest in chloroquine-treated ARPE-19 cells and in APP/mutant presenilin-1-transfected Chinese hamster ovary cells. *Neurobiol Aging* 2015;36:3228-38.
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- Liu J, Lu W, Reigada D, et al. Restoration of lysosomal pH in RPE cells from cultured human and ABCR(-/-) mice: pharmacologic approaches and functional recovery. *Invest Ophthalmol Vis Sci* 2008;49:772-80.
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Choi Seung A (hsa77@amc.ulsan.ac.kr)

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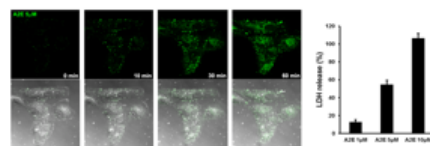
Results

Figure 1. Research scheme



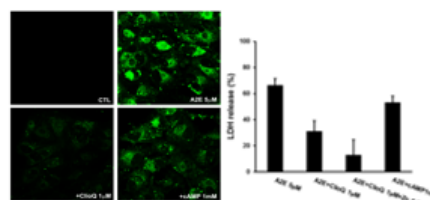
The effects of zinc and cAMP on lysosomal alkalization and dysfunction were examined in a cell culture model of AMD. We used A2E (lipofuscin derivative) to induce lysosomal dysfunction in ARPE-19 cells, and examined the effects of zinc and cAMP on lysosomal parameters in A2E-treated ARPE-19 cells.

Figure 2. Establishment of *in vitro* model of age-related macular degeneration



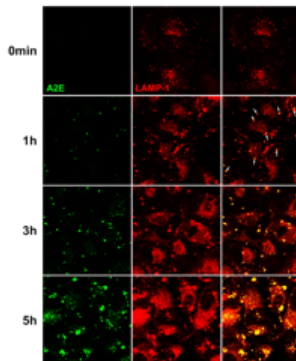
(A) After the addition of 5 μ M A2E, A2E accumulation (green dot) was increased in ARPE-19 cells, which was confirmed with confocal live image using the LSM710 Confocal Live-Cell Imaging System. Original magnification, $\times 630$
(B) Measurements of LDH release into the medium of ARPE-19 cells after 24 hours exposure to the indicated concentrations of A2E, expressed as mean \pm SD ($*P < 0.05$ compared with controls, $n=3$).

Figure 3. Reduction of A2E accumulation and cell death by zinc and cAMP



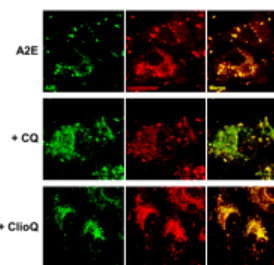
(A) Representative images of ARPE-19 cells treated with A2E. A2E accumulation (autofluorescence dot) was increased in ARPE cells at 12 h. A2E accumulation was decreased by treated with ClioQ. Also, A2E accumulation were decreased in dibutylryl cAMP-treated cells compared with A2E treated cells. Original magnification, $\times 630$
(B) Measurements of LDH release into the medium of ARPE-19 cells after 24 hours exposure to the indicated concentrations of 5 μ M A2E and A2E plus 1 μ M ClioQ or Clio plus 0.5 μ M zinc, or 1 mM dibutylryl cAMP, expressed as mean \pm SD ($*P < 0.05$ compared with controls; $n=4$). A2E-induced cell death was decreased by ClioQ or ClioQ plus zinc.

Figure 4. Co-localization of A2E accumulation site with lysosome



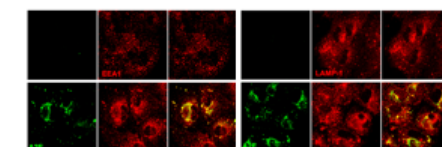
Time-course of A2E accumulation in lysosomes: confocal images of LAMP-1 stained ARPE-19 cells, treated with 5 μ M A2E. A2E accumulation gradually increased, whose area largely overlapped with lysosomal signals (green: A2E, Red: LAMP-1). Original magnification, $\times 630$

Figure 5. Correlation between A2E reduction and lysosomal acidification



After the addition of 5 μ M A2E, A2E accumulated in ARPE-19 cells (green dots). CQ-treated cells showed accumulation of A2E in cytosol more than in lysosome, and lysosome was alkalization by CQ (LysoTracker fluorescence was reduction). Treatment with ClioQ (1 μ M) markedly reduced A2E accumulation and co-localization with lysosome. At the same time, ClioQ restored lysosomal pH to the acidic range. Original magnification, $\times 1000$

Figure 6. A2E was likely accumulated by endosome-lysosome pathway



A2E accumulation in endosomes and lysosomes: confocal images of EEA1 or LAMP-1-stained ARPE-19 cells, treated with 5 μ M A2E for 6 h. A2E accumulation increased, which co-localized with endosomal or lysosomal signals (green: A2E, Red: EEA1 (left), LAMP-1 (right)). Original magnification, $\times 645$

Methods

Chemicals

N-retinylethanol-N-retinylethanolamine (A2E) was obtained from Gene and Cell Technologies (CA, USA); clioquinol (ClioQ), dibutylryl cyclic adenosine monophosphate (cAMP) and ZnCl₂ were purchased from Sigma (St. Louis, MO).

Cell culture

ARPE-19 cells were obtained from the American Type Culture Collection (CRL-2302; Manassas, VA) and were cultured in medium (Dulbecco's Modified Eagle Medium Nutrient Mixture F-12; Invitrogen, Carlsbad, CA) supplemented with 10% fetal bovine serum (FBS; Invitrogen) and 1% penicillin-streptomycin (Lonza, Allendale, NJ) at 37°C in a humidified 5% CO₂ incubator. Cells were used after they reached approximately 80% confluence.

Assessment of Cell Death

A2E-induced cell death was quantified by measuring lactate dehydrogenase (LDH) activity released into the culture medium. LDH activity was estimated using an automated microplate reader (UVmax; Molecular Devices, San Francisco, CA) by measuring the rate of decrease in absorbance at 340 nm.

Live cell image

ARPE-19 cells were treated with 5 μ M A2E alone, A2E plus 1 μ M ClioQ, or 10 μ M CQ or 1mM cAMP. Cells were stained with 75 nM LysoTracker red DND-89 (Invitrogen) for 30 min at RT and then transferred to slide glass. Confocal images were obtained using a LSM780 Confocal Live-Cell Imaging system (Carl Zeiss, Oberkochen, Germany).

Immunocytochemistry

After fixing in 4% paraformaldehyde, cells were washed in PBS and incubated in a permeabilizing and blocking solution consisting of PBS containing 0.2% Triton X-100 and 1% bovine serum albumin (BSA). After incubation with primary antibody (EEA1, endosome; LAMP-1, lysosome) at 4°C for 24 h, cells were further incubated with Alexa Fluor-conjugated secondary antibodies (1:500; Invitrogen) and examined by confocal microscopy (Carl Zeiss, Oberkochen, Germany).

Conclusion

- Accumulation of A2E caused RPE cell death.
- cAMP and zinc attenuated A2E toxicity in RPE cells.
- A2E accumulation largely occurred in lysosomes.
- A2E accumulation in lysosomes reduced acidity.
- cAMP and zinc re-acidified lysosomes and reduced A2E accumulation in RPE cells.
- A2E was likely accumulated by endosome-lysosome pathway.



Clinicopathological Characteristics of Miscarriages Featuring Placental Chronic Histiocytic Intervillositis

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INTRODUCTION

- Chronic histiocytic intervillositis (CHI) is a rare placental lesion characterized by infiltration of maternal mononuclear cells to the intervillous space.
- CHI is associated with adverse pregnancy outcomes such as fetal growth restriction and intrauterine death with a high recurrence rate.
- CHI has a high recurrence rate (67–100%), but its incidence in first-trimester miscarriages is not well-known.
- We studied the clinicopathological characteristics of CHI in first-trimester placentas using a large-sized miscarriage cohort and further analyzed the immune profiles of CHI using a quantitative multispectral imaging system.

METHODS

- We collected aborted placentas from a consecutively enrolled miscarriage cohort of Hamchoon Women's Clinic (Seoul, Korea) from 2012.3 to 2019.6.
- CHI was defined as the presence of mononuclear cell clusters in >5% of the intervillous space.
- Immunohistochemistry for CD68 and C4d was performed to confirm the presence of histiocytes and anti-fetal rejection, respectively.
- Immunoprofiles of inflammatory cell clusters in three representative cases were analyzed using a multiplex immunofluorescence panel and a multispectral microscopy (Opus[®]).
- Multiplex immunofluorescence panels included: (1) CD4, CD8, CD45RO, Foxp3, PD-L1, cytokeratin (CK); (2) CD206, CD56, CD68, CD11c, CD163, CK; (3) CD20, HLA class I, 2 CD68, CD11c, and CK.

RESULTS

- From 864 consecutive miscarriage placentas, 16 CHI cases from 14 mothers were identified (incidence rate: 1.9%). Two patients had each experienced repeated miscarriages with CHI during the study period. (Table 1).
- In the CHI cases, the median number of previous abortions was 3 (range, 0–8) and the median gestational age at abortion was 6 weeks (range, 6–9.6).
- Abnormal chromosomes were found in 37% of the placentas, and 46% of the patients had mutations in MTHFR.
- Autoantibody, glucose tolerance/polycystic ovary syndrome, and chronic endometritis were found in 31%, 31%, and 15% of the patients, respectively.
- Abortion recurred in the half of the 6 CHI cases during follow-up.

ID	Age	GA	TT	Flow	Sex	CHI	Chromosomes	MTHFR (C/T)	Previous abortion	Genetic	Autoantibody	Diabetes	Chronic endometritis	Polycystic ovary syndrome	Glucose tolerance	Follow-up
1	18	6	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
2	19	6	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
3	19	6	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
4	19	7	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
5	19	7	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
6	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
7	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
8	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
9	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
10	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
11	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
12	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
13	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
14	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
15	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None
16	19	8	1st	MA	Single	0	Normal	CC	0	None	None	None	None	None	None	None

Table 1. Clinical characteristics of the women with CHI. Age: maternal age (years), GA (gestational age) (weeks), TT: first-trimester treatment (SPT: in vitro fertilization, blastocyst transfer), Decid: decidua (NK: crumpled abortion, BC: blighted ovum), SA: No.: number of previous spontaneous abortions, Chr: C/G: chromosomal abnormalities in miscarriages, MTHFR: Methyltetrahydrofolate reductase, MTHFR (C/T): homozygous MTHFR 677C/T mutation, MTHFR (C/T): heterozygous MTHFR 677C/T mutation (not shown), Td: treatment for habitual abortion (immunoglobulin, heparin, aspirin, progesterone)

Of the 16 cases of CHI, 4 were accompanied by massive perivillous fibrin deposition (fibrin type, n=3, matrix-type fibrinoid, n=1; Fig. 1).

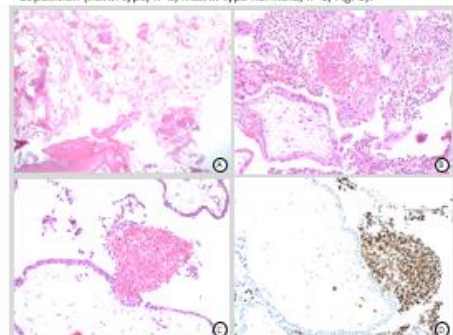


Figure 1. Histologic features of CHI. H&E staining showing mononuclear cells with non-form nuclei in the intervillous space (A, $\times 12.5$, B, $\times 200$). Perivillous fibrin was found around the villi (C, $\times 200$). CD68 immunostaining confirmed histiocytes attached to the villi (D, $\times 200$).

Biopsy materials from subsequent miscarriages were available in the two patients with repeated CHI. On pathologic examination, the miscarriages of both patients showed recurrent CHI, and the histopathologic features were similar to those of previous miscarriages (Fig. 2).

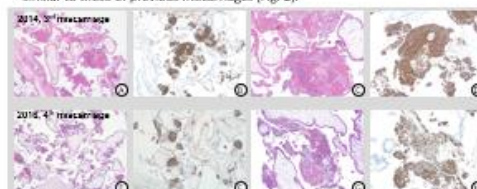


Figure 2. H&E staining (A, C, E, G) and CD68 immunostaining (B, D, F, H) in CHI cases of subsequent pregnancies (patient #2). A-D: 3rd miscarriage (A, $\times 40$; C, D, $\times 100$). E-H: 4th miscarriage (E, $\times 40$; G, H, $\times 100$).

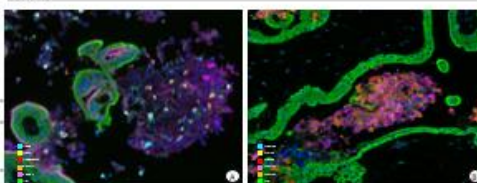


Figure 3. Multiple immunofluorescence staining.

Multispectral imaging analysis showed that the inflammatory cell aggregates consisted mostly of CD4⁺ T cells, and CD11c⁺/CD68⁺ histiocytes. FoxP3⁺ T-reg cells comprised 3.3% of the cells. Macrophages had high expression levels of HLA class I and II (Fig. 3).

CONCLUSION

- The incidence of CHI in first-trimester miscarriages was 1.9%.
- Our multispectral imaging results may be useful in better characterizing recurrent miscarriages with CHI.

Effects of providing manuscript editing through a combination of in-house and external editing services in an academic hospital



ASAN Medical Center

Joon Seo Lim*, Keenan Bailey*, Sung-Han Kim, Tae Won Kim
Scientific Publications Team, Clinical Research Center, Asan Institute for Life Sciences, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Background

English editing services are effective for improving manuscript quality as well as providing learning opportunities for non-native English-speaking authors. To better address the editing needs of the researchers at Asan Medical Center, we established a combined system of in-house and external editing services for handling large volumes of editing requests (> 2000 requests per year) and providing personalized editing service.

Methods

We established the Scientific Publications Team (SPT), an in-house editing team in Asan Medical Center in Seoul, Korea. The SPT is composed of two professional editors who manage editing requests sent to external companies while also providing one-on-one in-house editing services. We gathered author satisfaction data from 936 surveys between July 2017 and December 2018 and analyzed the number of editing requests and research publications by segmented regression analysis of interrupted time series data.

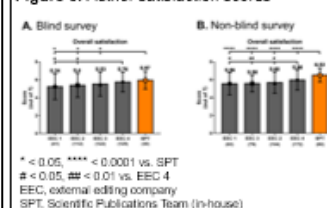
Results

The SPT processed 3931 editing requests during the study period, which was a marked increase compared with prior to its establishment ($P = 0.0097$). The authors were generally satisfied with the quality of editing services from both in-house and external editors. The in-house editors received significantly higher satisfaction scores than most external vendors in both blind and non-blind surveys. Importantly, the number of publications significantly increased ($P = 0.0007$) at one year after the establishment of the SPT.

Figure 1. Manuscript editing workflow for the combined in-house and external editing services



Figure 3. Author satisfaction scores



* <math>< 0.05</math>, **** <math>< 0.0001</math> vs. SPT
<math>< 0.05</math>, ## <math>< 0.01</math> vs. EEC 4
EEC, external editing company
SPT, Scientific Publications Team (in-house)

Figure 2. Trend of the editing requests

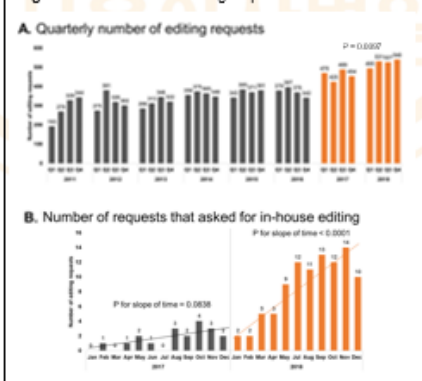
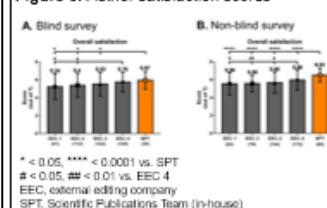


Figure 4. Trend of publications from Asan Medical Center



Conclusion

Providing a combination of in-house and external editing services resulted in high author satisfaction and subsequent hospital-wide increases in manuscript writing and publication. Our system may be adapted in hospitals to better address the needs of non-native English-speaking researchers.

포스터 만들기

Result 구성하기

- (1) 각 Figure/Table마다 연관된 text 달아주기
- (2) Text를 한 곳에 모아놓고 Figure/Table들에는 legend만 달기

Clinicopathological Characteristics of Miscarriages Featuring Placental Chronic Histiocytic Intervillitis

Yeon Na Kim, Yeon-Mi Ryu, Sang-Woob Kim, Chong-Jai Kim
 Department of Pathology, Asan Institute for Life Sciences, Department of Convergence Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Republic of Korea

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Figure 1. Manuscript editing workflow for the combined in-house and external editing services

Figure 2. Trend of the editing requests

A. Quarterly number of editing requests

B. Number of requests that asked for in-house editing

Figure 3. Author satisfaction scores

A. Blind survey

B. Non-blind survey

Figure 4. Trend of publications from Asan Medical Center

A. Quarterly number of publications from Asan Medical Center

Conclusion

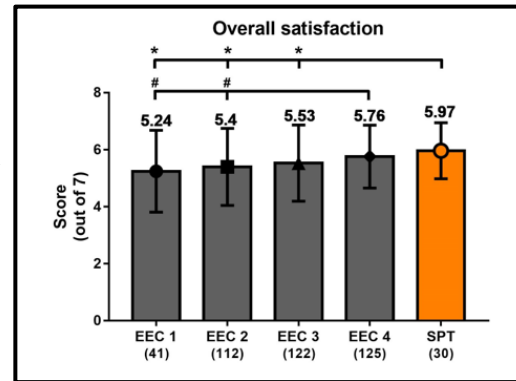
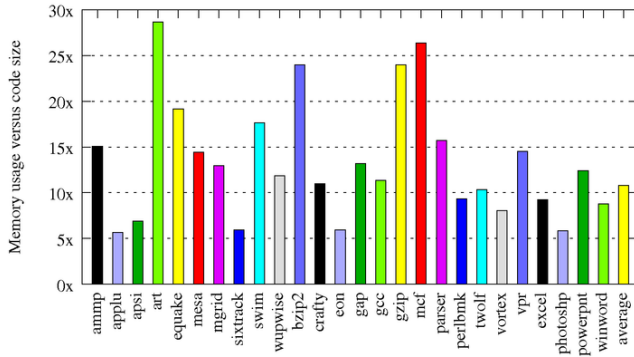
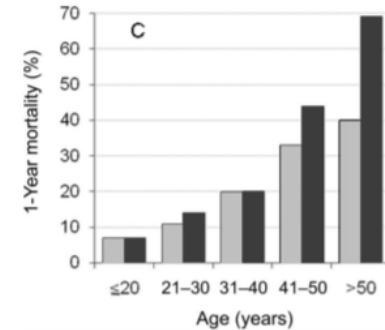
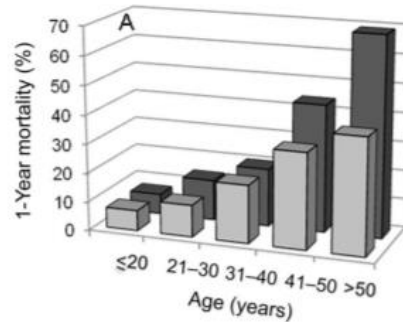
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포스터 만들기

Result 구성하기

Figure

- 3D 효과는 지양하기
- 형형색색 지양하기



Table

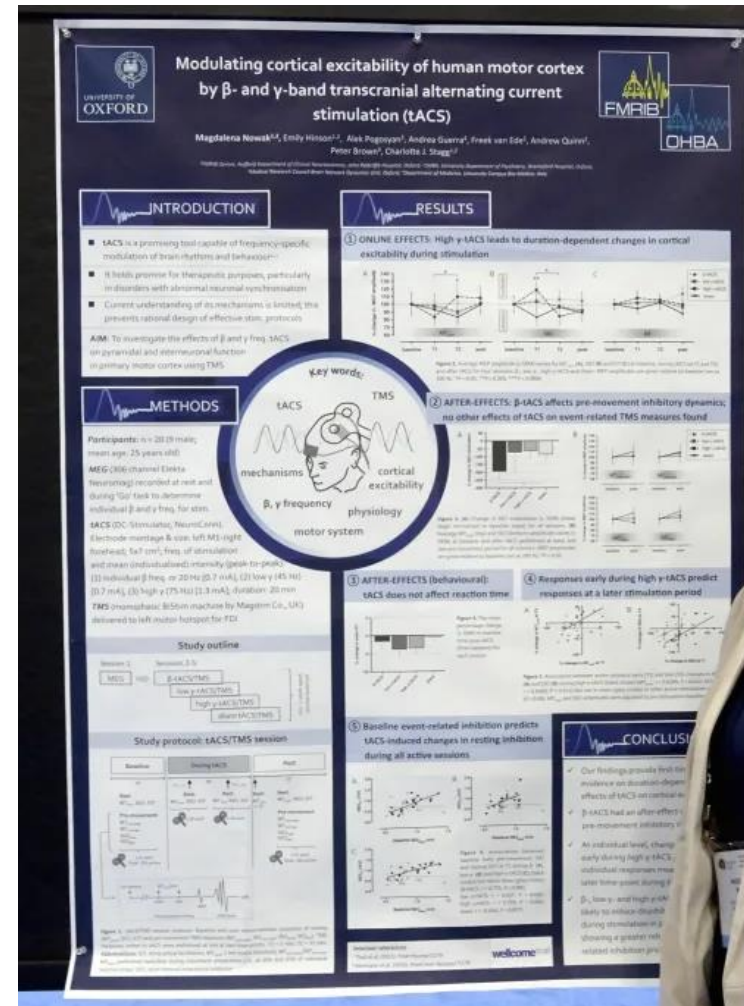
- 글씨 크기 충분히 크게
- 중요한 숫자에 **하이라이트**

Trial	Apple	Banana	Carrot
1	555	341	200
2	241	589	332
3	563	663	124
4	254	995	234

<https://www.makesigns.com/tutorials/images-graphs-colors.aspx>

포스터 만들기

- 가장 효과적인 구성방식은 연구 내용에 따라 달라짐
- 가독성
- 적당한 텍스트 양
- 눈길 끄는 디자인
- *포스터 내용 소개 대본 작성*
 - 짚어가면서 말할 내용 1분 가량 분량으로...



구연발표 지향점

- 듣는 사람들의 **흥미**를 끌고, **공감**을 유도하고, **이해**를 돕기
 - 애니메이션, progress bar, 페이지 넘버, 동그라미, 화살표, 하이라이트...
 - 가독성 중요시하기
- 가장 효과적인 마무리: **발표시간 엄수**
- 가능한 청중과 청중이 보는 화면을 번갈아 보면서 발표
- 랩미팅, 케이스 발표, 학회 (포스터, 구연), 강의 → 같은 원리로



경청해 주셔서 감사합니다